MENTAL RETARDATION ABSTRACTS

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Mental Retardation Abstracts is a quarterly publication of the Division of Mental Retardation, Rehabilitation Services Administration. It is a specialized information service designed to assist the Division in meeting its obligation to plan, direct and coordinate a comprehensive nationwide program for those with mental retardation and related handicaps. Specifically, this service is intended to meet the needs of investigators and other workers in the field of mental retardation for rapid and comprehensive information about new developments and research results and to foster maximum utilization of these results.

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Training School Bulletin

VOCATIONAL REHABILITATION FOR THE TRAINABLE AND SEVERELY MENTALLY RETARDED: AN ANNOTATED BIBLIOGRAPHY

Lemar J. Clevenger

In recent years, there has been considerable interest in providing opportunities for individuals classified as trainable and severely mentally retarded to live a more normal life – to live at home or in their home community and to be contributing members of society. The realization that these people can perform useful work under structured conditions has led to the development of sheltered workshops and adult activity centers designed specifically for them and the restructuring of their educational programing to focus on vocational rehabilitation.

This bibliography covers the literature from 1963 to 1970 and is limited to those documents concerned with the vocational rehabilitation and employment of the mentally retarded whose intelligence level is less than 50.

General Aspects and Philosophy

ALEXANDER, JIM. Opportunity for "multi" handicapped. *Motive*, 14(6):23-25, 1968.

A pilot rehabilitation program for the blind MR at Orient State Institute (Ohio) offers training in sheltered workshop skills.

ALLEN, ROBERT J. Meeting the needs of the older mongoloid individual through sheltered employment. In: Wisconsin Association for Retarded Children. *Mongoloid Conference Proceedings.* (Conference of the Mongoloid Individual, His Family, and His Community, held April 10-11, 1968, Milwaukee, Wisconsin.) Madison, Wisconsin, 1969, p. 27-30.

Specific community services should be available to meet the special needs of the adult with Down's syndrome.

BITTER, JAMES A.; & BOLANOVITCH, D. J. The habilitation workshop in a comprehensive philosophy for vocational adjustment training. *Rehabilitation Literature*, 27(11):330-332, 1966.

A general philosophy of vocational adjustment is seen in 4 workshop models (terminal, transitional, clinically oriented, and habilitation); the terminal model is probably most appropriate for the majority of MRs with IQs <50.

CAMPBELL, W. J. The habilitation of the post-school-group. *Clearing House Journal*, 8(March): 5-18, 1968.

TMRs need a sheltered environment in workshops as well as living arrangements; they also need the leadership of understanding, nurturant persons.

CLAVEL, M. Une experience de mise au travail (An experience in work placement). *Sauvegarde de l'Enfance*, 20(1):285-287, 1965.

TMRs are capable of working; however, one of the major problems in their continued employment is

in organizing the social and administrative aspects of the job.

CROSSON, JAMES E. A technique for programming sheltered workshop environments for training severely retarded workers. *American Journal of Mental Deficiency*, 73(5):814-818, 1969.

Workshop staff should find ways to train the TMR rather than find work to match present skills; the application of operant behavior principles is an efficient and effective vocational training procedure.

FENDELL, NORMAN. Adult education in the sheltered workshop—A new dimension. *Digest of the Mentally Retarded*, 5(2):116-118, 1968-69.

Although the cost of continuing adult education for the TMR is seen as prohibitive by many educators, it is much cheaper to train an MR to live in the community than it is to keep him in an institution.

GALAZAN, MICHAEL M. Vocational rehabilitation and mental retardation. In: Philips, Irving, ed. *Prevention and Treatment of Mental Retardation.* New York, New York, Basic Books, 1966, Chapter 18, p. 294-307.

Sheltered workshops continue to be the best way to serve the employment needs of the SMRs and to provide them with feelings of self-worth and contribution to the community.

JOHNSTON, G. RAYMOND. The adult can respond. *Intellectually Handicapped Child*, 8(4):20-22, 1969.

Adult SMRs in workshops respond to affection, consideration, and respect; jobs must be kept within their capacity.

LECUYER, R. Note sur la mise au travail et l'avenir des mongoliens (Note on the placement and working—future of mongoloids). *Sauvegarde de l'Enfance*, 20(1):179-182, 1965.

Protective and supervised workshops in which appropriate tasks are undertaken should be established for Ss with Down's syndrome; such workshops should also provide living quarters for those who are unable to live at home or have no family.

MASOVIC, S. Legal aspects of sheltered employment for mentally retarded. In: International League of Societies for the Mentally Handicapped. *Symposium on Sheltered Employment: Frankfurt, 10-12 February 1966.* Heering, Anton H., chairman. Bruxelles, Belgium, 1967, p. 27-31.

Six legal considerations involved in providing sheltered employment for moderately and severely retarded are discussed in terms of legislative programs.

OHIO PLANNING AND GRANTS BUREAU. A working future. *MR Highlighter*, 1(3):1, 1967.

Programming for the TMR in Ohio combines academic training with work skill routines.

PREAUT, ROBERT. Les problemes d'integration socioprofessionelle et l'avenir des insuffisants mentaux (Problems of social integration and the future of the mentally retarded). *Sauvegarde de l'Enfance*, 20(1):150-178, 1965.

The problems and values of work experience for the MR are delineated; the TMR can attain a certain degree of self-sufficiency under supervision and protective guidance.

RAYMOND, P. Deux ans et demi d'experience aux ateliers Denis Cordonier a Lyon (Two and a half years of experience in the Denis Cordonier Workshops in Lyon). *Nos Enfants Inadaptes*, 6(2):2-5, 1963.

The workshops in Lyon (France) were created for MRs between 16 and 45 years of age and with IQs <50 to preserve the link with the family and its security, create and maintain within the worker a

sense of his own value, and create new social ties with co-workers.

Rural retarded learn independence. *Rehabilitation Record*, 9(2):15-17, 1968.

A hypothetical TMR is followed through initial referral to final graduation from the Vocational Training Center in Fargo, North Dakota.

SALMON, F. CUTHBERT; & SALMON, CHRISTINE F. *Sheltered Workshops: An Architectural Guide.* Stillwater, Oklahoma, Oklahoma State University, 1966, 134p. $0.90.

Planning should consider:
1) suitability for activities to be performed by the type of worker employed.
2) flexibility for different and changing uses.
3) safety – fire, accident, & industrial precautions.
4) acoustical practicality.

Technical details on hostels and workshop training centre. London: National Society for Mentally Handicapped Children, 1964, 4p.

The Slough demonstration project on hostels and a workshop training center for TMRs was designed to exemplify what should be available to the adult MR and to provide systematic and comprehensive social and vocational education.

TIZARD, JACK. Rehabilitation and employment of the severely retarded: An overview. In: Jervis, George A., ed. *Expanding Concepts in Mental Retardation: A Symposium.* Springfield, Illinois, Charles C. Thomas, 1968, Chapter 27, p. 209-215.

To plan comprehensive services (including rehabilitation and employment) for MRs with IQs <50, data are needed on prevalence, associated handicaps, family problems, institutional care, and currently available programs.

Vocational Training and Sheltered Workshop Programing

BARKLIND, KENNETH S. Work activity as a context for education and as a legitimate vocation for the trainable retarded adult. *Education and Training of the Mentally Retarded*, 4(1):11-16, 1969.

A work-activity program designed to aid 16 TMR young adults within the community indicated that the project was successful at the "maintenance level."

BAROFF, GEORGE S.; & TATE, BOBBY G. A demonstration sheltered workshop in a state institution for the retarded. *Mental Retardation*, 4(3):30-34, 1966.

The need for research laboratory equipment was the impetus for establishment of a sheltered workshop; 26 residents (IQs 31-80; CAs 14-34 yrs) were trained to build the equipment and conduct a mail order business with psychologists interested in such equipment.

BLUE, C. M. Trainable mentally retarded in sheltered workshops. *MR/Mental Retardation*, 2(2):97-104, 1964.

A workshop for TMRs and EMRs was responsible for the entire manufacturing process of ballpoint pens and pencils; as the pressure for production commitments increased, the TMRs began to falter in their production probably because of lack of attention to their personal adjustment training.

CARUTH MEMORIAL REHABILITATION CENTER. *Work Adjustment Training for Mentally Retarded Young People in a Community Setting: Final Report.* Diana, Pearl B., ed. Dallas, Texas, May 1969, 24p. Mimeographed.

A 3-year demonstration project was designed to provide work adjustment training for 110 out-of-school MRs (mean IQ 60); 38 of 76 who had completed training were now regularly employed, but none with an IQ < 40 were able to be trained and placed on a job.

COWDEN, KENNETH. The mentally retarded can contribute. *Hospital & Community Psychiatry,* 20(12):395, 1969.

After a training program, 19 MR (average IQ 41) residents of DeWitt State Hospital (California) picked tomatoes on a piece-work basis; the quality of their work was higher than non-resident standards.

HANNAFORD, ALONZO E.; & WORTH, LO ANNE L. *A Guide to Introductory Developmental Activities for the Trainable Mentally Handicapped in the Industrial Education Laboratory.* Normal, Illinois, Illinois State University, 1968, 31p.

The introductory industrial educational activities included in this booklet were developed to be used during the beginning stages of industrial education programs and to serve as aids to total programing for TMRs.

HANSEN, CARL E. The work crew approach to job placement for the severely retarded. *Journal of Rehabilitation,* 35(3):26-27, 1969.

In a work training program for the TMR at Laurel Ruff Center (Sacramento, California), the boys worked under a supervisor as the clean-up crew for a recreational area.

HARDING, FRANCIS A.; SINGER, DOROTHY M.; & O'HARA, JOSEPH. Retarded in plastics industry. *Rehabilitation Record,* 5(5):16-17, 1964.

A program to train MRs for employment in a local plastics industry was expanded to include TMRs.

HINOJOSA, EDUARDO. Food service training in an institutional setting: Behavior versus learning. In: Ayers, George E., ed. *Innovations in Vocational Rehabilitation and Mental Retardation.* (Proceedings of the Vocational Rehabilitation Subdivision Meeting, American Association on Mental Deficiency Conference, San Francisco, California, May 1969.) Washington, D. C., American Association on Mental Deficiency, 1969, p. 19-23.

A pilot program to train 58 Austin State School residents (CA 17-46 yrs) in the art of food service consisted of 160 hours of combined classroom and on-the-job training; 48, including 7 TMRs, are now employed.

JEWISH EMPLOYMENT AND VOCATIONAL SERVICE. *Final report: Vocational Rehabilitation Administration Project RD-1527.* Bitter, James A., ed. St. Louis, Missouri, 1967, 33p.

A demonstration work experience center was established for MRs (CA 16-21 yrs; IQ 40-65) through the cooperation of several agencies; program emphasis was on reality-oriented experiences, case coordination by one counselor only, and extension of habilitation services into the community.

KRAMER, JOSEPH. Work adjustment training and evaluation for teenage retardates. In: West, Wilma L., ed. *Occupational Therapy for the Multiply Handicapped Child.* (Proceedings of the Conference on Occupational Therapy for the Multiply Handicapped Child, April 28-May 2, 1965.) Chicago, Illinois, University of Illinois, Department of Occupational Therapy, 1965, p. 241-261.

The development of work habits and skills essential to employment of TMRs was the primary goal of a work-related program which concentrated upon work adjustment, training, and evaluation carried-out under production, factory, and assembly conditions.

LINDE, T. Social development for trainable retardates. *Rehabilitation Record,* 4:24-27, 1963.

A social development program for post-school TMRs included work on subcontracts, lunch and coke breaks, and individual and group recreation.

MOCEK, EVE; LERNER, JOSEPH S.; ROTHSTEIN, JEROME H.; & UMBENHAUR, GEORGE W. *Report of Special On-The-Job Training Demonstration Project for Mentally Retarded Youth and*

Adults, July 1964-July 1965. San Mateo, California, Children's Health Home for Mentally Retarded Children and Adults, 24p.

A pre-vocational training program for young adult MRs (IQs 30-69) included paper handling, candle assembly, lock plate mounting, button lock and food tray assembly, and label trimming; the SMR had more self-confidence when training was completed.

NATIONAL ASSOCIATION OF SHELTERED WORKSHOPS AND HOMEBOUND PROGRAMS, INC. *New Work Opportunities for the Mentally Retarded—Final Report.* Washington, D. C., November, 1967, 77p.

The Flame of Hope Candle project demonstrated that MRs (IQ 33-89) can be trained to manufacture quality merchandise, and that assistance from specialized areas and consultants is valuable in developing a national market.

OVERS, ROBERT P.; HOLMES, ELIZABETH; & McFATRIDGE, DIANE. *Paid Domestic Work for the Trainable Retarded Girl: A Pilot Project.* Milwaukee, Wisconsin, Curative Workshop of Milwaukee, 1970, p. 105.

To determine whether or not employment in domestic work is feasible when specialized training and selected placement is provided, 4 TMR adolescent girls were placed in households for training in domestic skills.

Retarded emerge into brighter world. *Medical World News,* 8(1):142-143, 146-147, 1967.

Teenage MRs (IQs 25-75) were trained for high-risk trades (demolition, forestry, and agriculture) for boys and office tasks for girls.

SANDERS, JOSEPHINE P. A pilot course in lifemanship for severely retarded youth. *Exceptional Children,* 35(9):747-748, 1969.

Training in personal, social, and economic skills for a group of 30 MRs (CA 16-26 yrs; IQ 30-60) resulted in considerable success in preparing these young adults for employment.

SERVICES, INCORPORATED. *Out-plant supervised janitorial service employing the mentally retarded.* Erickson, Walfred, ed. Bellevue, Washington, 1967, 53p.

A program combining classroom and on-the-job training was designed to provide skills and subsequent employment in janitorial maintenance for MRs, including SMRs, to the extent that job productivity offset their wages and supervision.

TATE, BOBBY G.; & BAROFF, GEORGE S. Training the mentally retarded in the production of a complex product: A demonstration of work potential. *Exceptional Children,* 27(1):405-408, 1967.

Institutionalized MRs (IQs 31-80) were trained in a sheltered workshop to assemble electrical relay panels in 20 sequential operations; 28 were eventually employed 30 hours a week, and production expanded to other electrical devices.

TOBIAS, J.; & CORTAZZO, A. D. Training severely retarded adults for greater independence in community living. *Training School Bulletin,* 60:23-37, 1963.

An occupational day center for MR adults (mean IQ 37) provided training in travel, grooming, community orientation, remunerative work, food preparation and handling, and recreation.

WILLIAMS, PAUL. Industrial training and remunerative employment of the profoundly retarded. *Journal of Mental Subnormality,* 13(1):14-23, 1967.

A 17-year old male with Down's syndrome, no speech, and a Vineland Social Maturity Scale rating of 2 years 2 months was given industrial training and became employable.

WOLFENSBERGER, WOLF. Teaching and training of the retarded in European countries. *MR/Mental Retardation*, 2(6):331-337, 1964.

Throughout Europe, SMRs (often with multiple handicaps) operate dangerous equipment, perform complete tasks, and produce at respectable levels of output.

ZAETZ, JAY L. *Occupational Activities Training Manual for Severely Retarded Adults.* Springfield, Illinois, Charles C. Thomas, 1969, 107p.

Program emphasis is on the development of prevocational skills and preparation for employment in a sheltered workshop; the described activities have been used successfully with institutionalized MRs in an IQ range of 15-30.

Productivity Improvement

BROWN, LOU; & PEARCE, EVE. Increasing the production rates of trainable retarded students in a public school simulated workshop. *Education and Training of the Mentally Retarded*, 5(1):15-22, 1970.

A simulated workshop environment in a public school was manipulated in an attempt to increase the production rates of 3 TMR students (CA 16-20 yrs; IQ 30-48).

CROSSON, JAMES EDWARD. The experimental analysis of vocational behavior in severely retarded males. *Dissertation Abstracts*, 27A(10):3304-3305, 1967.

Higher and more stable vocational behavior rates were maintained in SMRs given token reinforcement than in controls given only social reinforcement.

HUDDLE, DONALD D. Work performance of trainable adults as influenced by competition, cooperation, and monetary reward. *American Journal of Mental Deficiency*, 72(2):198-211, 1967.

When 48 TMRs (CA 18-40 yrs) were equally divided into reward and no reward groups, it was found that the reward group performed significantly better than the no reward groups; competition was also an important factor in workshop performance.

JENS, KEN G.; & SHORES, RICHARD E. Behavioral graphs as reinforcers for work behavior of mentally retarded adolescents. *Education and Training of the Mentally Retarded*, 4(1):21-27, 1969.

The employment of behavioral graphs for 3 TMR adolescents resulted in increased production rates, indicating that these graphs were beneficial as reinforcers.

Psycho–educational Aspects

ELKIN, LORNE. Predicting productivity of trainable retardates on experimental workshop tasks. *American Journal of Mental Deficiency*, 71(4):576-580, 1967.

Employability of MRs was examined by objectifying job success and work sample criteria and predicting job potentials for 58 TMRs (mean IQ 34); productivity was significantly related to intelligence, psychomotor ability, work sample success, and sociability.

TOBIAS, J.; & GORELICK, J. Work characteristics of retarded adults at trainable levels. *MR/Mental Retardation*, 1(6):338-344, 1963.

Sixty MRs (IQs 15-52; CAs 18-34) were evaluated on a simple salvage job which required the separation of a wing-nut from a threaded bolt thus freeing a metal washer; the 3 units were placed in separate trays for packaging. There was a definite relationship between intelligence and units produced. An MA of 3 years or an IQ above 20 seemed to constitute a cut-off point.

WAGNER, EDWIN E.; & HAWVER, DENNIS A. Correlations between psychological tests and sheltered workshop performance for severely retarded adults. *American Journal of Mental Deficiency*, 69(5):685-691, 1965.

A battery of psychological and psychomotor tests was administered to 27 TMRs (CA >21 yrs) and found to correlate highly (ρ's ranged .50-.89) with criteria rankings of workshop success.

WALLIN, J. E. WALLACE. Education status of clients in a workshop and training center for adolescent and adult mental retardates. *Journal of Genetic Psychology*, 114(1):41-62, 1969.

Data from a battery of educational tests administered to 44 MRs (mean IQ 52) indicated that many had not developed dependable skills in simple math, writing one's name, calendar concepts, time telling, and weighing objects; therefore, workshops should provide on-the-job training as well as training to improve basic academic skills.

ABBREVIATIONS
used in Mental Retardation Abstracts

BI	brain injury, brain injured
CNS	central nervous system
CP	cerebral palsy
c/w	compared with
EMR	educable mentally retarded
ep	epilepsy
fr	from
inst	institution, institutionalized
MR	mentally retarded
PMR	profoundly mentally retarded
SMR	severely mentally retarded
spec ed	special education
TMR	trainable mentally retarded
w/	with

BROAD ASPECTS OF MENTAL RETARDATION

1 **HEATON-WARD, W. A.** Childhood autism. *British Medical Journal*, 1(5696):627, 1970. (Letter)

A disproportionate share of inadequate resources should not be devoted to "autistic" children—a term which is the fashionable euphemism for all non-communicating MR children—unless it can be shown that the benefit is greater to them than to the bulk of MR. (1 ref.) - *B. Berman.*

No address

2 **VAN PELT, J. D.** MEDLARS and mental retardation. *Australian Journal of Mental Retardation*, 1(5):163-168, 1971.

The National Library of Australia is the Australian agent for the U.S. National Library of Medicine's MEDLARS (Medical Literature Analysis and Retrieval System). For MR researchers, MEDLARS provides a coverage of 2,700 journals in 38 languages, and assistance in any MR aspect (sheltered workshops, rehabilitation, hospital architecture, etc.). A spot check of the February 1970 issue of *Index Medicus* showed 36 articles on MR; this does not include specific headings, such as mongolism, homocystinuria, phenylketonuria, tuberous sclerosis and Hartnup disease. Sample citation requests show the extent of coverage. MEDLARS should not be used for questions that can be answered locally by consulting *Index Medicus, Mental Retardation Abstracts*, or other reference tools. (No refs.) - *B. Berman*

National Library of Australia
Canberra City, A.C.T., Australia, 2601

3 **PENROSE, L. S.** Measurement in mental deficiency. *British Journal of Psychiatry*, 116(533):369-375, 1970.

The study of MR is scientific as is demonstrated by the amount of quantitative work done in the field. However, mental measurement or intelligence testing is at best imperfect. The distribution of intelligence is skewed at the lower end of the scale, intelligence is not a linear function of age, and specific skills combine to make up general intelligence. Tests should be standardized for each age group and for each diagnostic category. Physical measurements such as head circumference, dermatoglyphics, and total ridge counts have been used to distinguish subgroups of retardates, and miscellaneous measurements, such as parental age at birth, body fluid components, and cytogenetics, have also been utilized. Such measurements have the greatest research potential. (27 refs.) - *E. L. Rowan.*

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4 **SHAPIRO, ALEXANDER.** The clinical practice of mental deficiency. *British Journal of Psychiatry*, 116(533):353-368, 1970.

The provision of good clinical care for the MR requires: a coordinated program of prevention and cure through research; a treatment program including medical care, education, training, and socialization; and a management program with provision for environmental manipulation. Such research, treatment, and management are best carried out

under the direction of specially trained psychiatrists but with the use of all appropriate modalities. The large hospital center is the logical place to integrate many specialty services with the benefit of cross-fertilization of ideas. Research can be stimulated and special care provided for groups with special problems. Community services would include education, training, and recreation. Integrated service would also provide for easy movement to and from residential facilities. (18 refs.) - *E. L. Rowan.*

Harperbury Hospital
St. Albans, Herts, England

5 **MURDOCK, C. GEORGE.** The abused child and the school system. *American Journal of Public Health,* 60(1):105-109, 1970.

A program initiated in the Syracuse (New York) School District identifies and protects abused children. Although state laws now protect abused children and many cases are identified by physicians and hospitals, incidents with older children often go unnoticed. This led to the establishment of a school system surveillance program in 1964. The program proved to be the greatest single source for uncovering cases of abuse in children of school age. The system utilizes a simple reporting form, 2 full-time social workers for case investigations, and a central registry, which often reveals cases of repeated abuse. After 4 years, a total of 80 abuse cases of children between 5 and 14 years of age was reported. Difficulties included reluctance of school personnel to report cases and the need for maximum cooperation between the school system and the investigating agency. Recommendations from the American Academy of Pediatrics include requiring physicians to report suspected cases immediately, immediate investigation by a properly equipped agency, protection of the child, maintenance of a central registry, and immunity from suit for the physicians or reporting hospital. (6 refs.) - *S. Glinsky.*

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6 **HOPKINS, KENNETH D.** Regression and the matching fallacy in quasi-experimental research. *Journal of Special Education,* 3(4):329-336, 1969.

A source of invalidity in behavior research studies is statistical regression, particularly in the matched-pair approach. Analysis of several studies reveals that supposed gains between pretest and posttest are explainable as regressions to the mean. A second pretest does not eradicate regression, but only diminishes it since tests administered closely in time simply correlate more highly than those separated by a greater time interval. In studies with a matched-pair design, even slight pair member differences in the match variable result in a higher score in the population with the higher mean. Nor do identical scores on the matching variable eliminate regression. The matched-pair approach also seriously restricts the external validity of findings when the "matched" subjects are taken from populations with different means. These considerations suggest random assignment to treatment and non-treatment groups in work with non-organismic independent variables. In comparisons of groups differing in organismic variables, the dependent variable should be the residual gain scores. (11 refs.) - *S. Glinsky.*

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7 **SCHEERENBERGER, R. C.** Mental retardation records: New standards pinpoint characteristics of mental retardation records development. *Medical Record News,* 42(4):32,46-50, 1970.

A functional clinical record system which meets the new records standards of the Accreditation Council for Facilities for the Mentally Retarded can be an invaluable aid in programing MR needs. A functional clinical record identifies client needs, clearly describes treatment-training programs, and provides an on-going review of progress. Record usefulness is vitiated by failure to define the specific purposes of the clinical record, staff failure to maintain proper and timely records, inadequate staff participation, the large number of agencies requiring information, and inadequate coding systems. The nomenclature of the American Association on Mental Deficiency with its medical and behavioral classifications has advantages, but it and similar nomenclatures are still subject to inaccuracies and incompleteness. The Accreditation Council for Facilities for the

Mentally Retarded has established a set of comprehensive records standards which include the maintenance of the resident's records, their content, their confidentiality, a central record service, statistical records keeping, and records personnel and facilities. Adoption of these standards will assure clinical records which are timely, precise statements of each individual's needs, treatment, and progress. (7 refs.) - *S. Glinsky.*

Central Wisconsin Colony and Training School
Madison, Wisconsin

8 **SOLLY, KENNETH.** "Subnormality for the seventies"—Programme for pressure. *Parents Voice,* 21(1):6-7, 1971.

The program for pressure of the National Society for Mentally Handicapped Children (NSMHC) is designed to continue the momentum of national interest in MR work generated by the 1969 Community Care Conference. An immediate result of the Conference was a community program to improve the quality of life for MRs in hospitals. Subsequent actions in the program for pressure included a concentrated study tour of Danish MR services, a follow-up working committee, the sponsoring of conferences to attack problems related to the design of new facilities and the improvement of old ones, 2 new NSMHC publications, a planned study tour of MR services in Sweden, and an international symposium of MR education experts. The program for pressure continually presses for wider understanding of MR problems, public involvement, and definitive practical actions. (No refs.) - *S. Glinsky.*

No address

9 **ADAMS, MARGARET.** *Mental Retardation and Its Social Dimensions.* New York, New York, Columbia University, 1971, 315 p. $10.00.

The present state of knowledge on MR and the existing possibilities for the care and treatment of individuals with this social handicap are reviewed in light of historical perspective. The social needs of the MR and their families are examined, and the role of social work in helping to meet these needs is described. The topic is approached from a sociological point of view with emphasis on the role and status ascribed to the retarded, the patterns of interaction which are determined by these, and the healthy or pathological effects on the retarded individual and his surrounding normal environment. The 3 currently defined social work methods (casework, group work, and community organization) are discussed within this context, and the importance of utilizing them interchangeably is stressed. The potential that exists for assimilating the MR into the fabric of normal society is emphasized. It is also noted that many of the social issues surrounding MR are equally common to client groups presenting other problems. (46-item bibliog.; 227 refs.) - *J. C. Moody.*

CONTENTS: The Social Nature of Mental Retardation; The Historical Background to Services for the Mentally Retarded; Social Work Perspectives on Mental Retardation; The Application of the Three Social Work Methods; Some Concepts of Casework; The Social Evaluation and Its Significance for Mental Retardation; The Professional Relationship with the Dependent Client and His Family; The Professional Relationship with the Mildly Retarded Client and his Family; Some Concepts of Group Work; Community Organization in the Field of Mental Retardation.

10 **ADAMS, MARGARET.** The socioclinical nature of mental retardation. In: Adams, Margaret. *Mental Retardation and Its Social Dimensions.* New York, New York, Columbia University, 1971, Chapter 1, p. 1-15.

Retardation covers many apparently unrelated mental and physical disabilities, and various disciplines (e.g., medicine, law, psychology, education, and social work) are concerned with the handicap. Social malfunctioning is the primary criterion of MR, and the social work profession has major responsibility for intervention. Retardation on a large scale is a phenomenon of societies with highly complex social functioning and organization which calls for a higher level of adaptive ability. The concomitant industrialization and urbanization create an environment inimical to physical, emotional, and social growth. Biomedical advances promote survival of the biologically defective and also provide means of identifying great numbers of retarded individuals. Behaviorally, MR can be classified into 5 groups based on IQ and associated functioning capacity. The varying levels of dysfunction depend on the degree of impairment of the individual's total adaptive mechanism which, in turn, is largely determined

by residual neurological damage. Biological causes of MR are diseases and/or conditions due to: infection; intoxication; trauma or physical agent; disorder of metabolism, growth, and nutrition; new growth; gross brain disease (postnatal); unknown prenatal influence; prematurity; or to unknown or uncertain causes with structural reaction alone manifest. Biological causes often have social/environmental influences such as poverty and consequent poor maternal health. The unduly large proportion of retardates in the lowest socioeconomic strata indicates that social and environmental factors contribute to MR, especially mild MR. Advances in psychology and sociology counter the concept of MR as a fundamentally irreversible condition, so that now MR is considered as having various etiologies and an equal number of different outcomes. (15 refs.) - *J. C. Moody.*

11 **ADAMS, MARGARET.** The historical background to services for the mentally retarded. In: Adams, Margaret. *Mental Retardation and Its Social Dimensions.* New York, New York, Columbia University, 1971, Chapter 2, p. 16-51.

Two major contributions to the movement to care for the MR were Itard's experiences in caring for a "wild boy" in France in 1799 and Seguin's social education of an idiot boy 30 years later. In both Europe and the U.S., special care for the retarded originated in the middle of the nineteenth century as an outgrowth of treatment for specific sensory defects. Supported by substantial public funds, the early institutions' standards of care were very high, reflecting compassionate concern for the mentally handicapped. Treatment was aimed toward training and eventual rehabilitation in the community. With the increasing complexities of urbanization accompanying the industrial revolution in the U.S., rehabilitation into the community was no longer feasible for many MRs. Institutions turned to long-term custodial care. In the first quarter of the twentieth century, the eugenic scare shifted the aim of protecting the mentally handicapped from a cruel and exploitative society to protecting society from the feared contamination of irreversibly inferior mental stock. Since then, special education and services for the retarded and social support within the community have been evolving slowly. The colony plan of providing social protection for the MR while productively utilizing their manpower was the prototype of halfway houses. Family care developed in the 1930's for those unlikely to graduate to eventual independence. The Depression and World War II contributed to a period of relative neglect of MR in the U.S. and resulted in overcrowded institutions and consequent reduction in quality of care. Over the past 20 years, however, with impetus from the U.S. Children's Bureau and the National Association for Retarded Children among others, demonstration projects, coordinated plans, and legislation are moving toward nationwide comprehensive care embracing alleviative, rehabilitative, and preventive programs. (68 refs.) - *J. C. Moody.*

12 **ADAMS, MARGARET.** Social work perspectives on mental retardation. In: Adams, Margaret. *Mental Retardation and Its Social Dimensions.* New York, New York, Columbia University, 1971, Chapter 3, p. 52-70.

Social work has the broad dual function of overcoming the alienation of MRs from society and of compensating for their social malfunctioning through the provision of services. In the past, however, social work gave little attention to the problems of MR. This partly stemmed from the profession's psychiatric orientation which led to withholding help from many client groups whose pattern of disability or source of maladjustment did not fit into the psychodynamic frame of reference. The newer identification with public health refocuses social work's concern beyond the scope of individual inadequacy to the contributions of environmental forces to particular manifestations of social maladjustment. Prevention of retardation may be made feasible by a concerted attack upon contributory social-environmental conditions and by identifying, establishing, and sustaining factors within the total environment that promote healthy social functioning. To compensate for the specific functional difficulties of the MR and to reinforce the caretaking efforts of normal individuals and groups in their environments, a therapeutic network of continuing services embodying the concept of the total therapeutic milieu must be devised. (19 refs.) - *J. C. Moody.*

13 **ADAMS, MARGARET.** The application of the three social work methods. In: Adams, Margaret. *Mental Retardation and Its Social Dimensions.* New York, New York, Columbia University, 1971. Chapter 4, p. 71-90.

The distinction between the characteristics, problems, and origins of mild retardation and those associated with the small minority of severely retarded whose handicap is due to clearly identified biological damage makes it difficult to treat these 2 groups as an entity. Social work with the severely retarded may focus on helping their families adjust to their chronic disability and dependence; whereas with the mildly retarded in culturally deprived families, the emphasis should be on community action to mobilize clients' efforts to change their adverse social situation. Practical application of the 3 social work methodologies (individual casework, group discussion and involvement, and community organization) is influenced by the special features of MR: chronic stress in the form of disability, dependence, and family vulnerability. Moreover, the wide range of problems associated with MR is likely to require application of all 3 methods either simultaneously or as alternative plans in sequence. Because of MR's complexity, a collaborative multidisciplinary approach is needed to tackle the comprehensive adjustment problems created by this disability. The social worker's role with colleagues of other professions is to interpret the social dimension which must be considered in formulating overall treatment goals. (11 refs.). - *J. C. Moody.*

14 **ADAMS, MARGARET.** Some concepts of casework. In: Adams, Margaret. *Mental Retardation and Its Social Dimensions.* New York, New York, Columbia University, 1971, Chapter 5, p. 91-113.

Casework is the social work method most concerned with intervening in the psychosocial aspects of an individual's life. Counseling can reduce the psychological resistance to utilizing a particular service and is invaluable for interpreting the precise nature of specific services being recommended. Until recently, casework in the field of MR has not been maximally useful because of lack of adequate and appropriate services to back it up. As a consequence, there has been distorted emphasis on the psychological components of the total problem. Phases in which casework can help in the total adjustive processes affecting families of the retarded include: crisis intervention; supportive relationship, particularly with the retardate's parents; and retainer operations which permit indefinite, unintensive contact maintained by both client and social worker that can be converted promptly into a more intensive form when a crisis occurs. Identification of problems secondary to MR is also an important function of casework in this field. (18 refs.) - *J. C. Moody.*

15 **ADAMS, MARGARET.** The social evaluation and its significance for mental retardation. In: Adams, Margaret. *Mental Retardation and Its Social Dimensions.* New York, New York, Columbia University, 1971, Chapter 6, p. 114-150.

It is the social acceptance of the retarded individual's disability and deviance that minimizes the handicap. This acceptance is closely related to the capacity of the environment to contain the retarded person. The main diagnostic task of the social worker, therefore, is to assess the interaction between these constituent parts with particular emphasis on how far it promotes the healthy functioning of both. This sociological model for MR offers a more constructive way of approaching the problems associated with this disability than the more traditional pattern which focuses on individual pathology. Effective assessment of the social environment of a retarded person must be approached along 2 lines: the emotional and material resources for the protection and stimulation of the MR client and at what cost to the normal members of the family these are provided. Specific social components to be scrutinized in the diagnostic process include: the client's level of social functioning in conjunction with his status and role as perceived by his family and with due note of cultural influences on these perceptions; medical histories of both parents and their families; patterns of relationships among nuclear and extended family members, particularly in regard to their involvement in the problem of retardation; the way in which the family fits into the community of which it is a part; and the health, education, and social services available to the MR and his family to mitigate his disability. Other points to be noted are economic conditions and the physical environment. The evaluation should combine its conventional techniques for uncovering the causes of the current difficulty with an exploration of those resources which have

provided support in the past and can be mobilized for the future. (14 refs.) - *J. C. Moody.*

16 **ADAMS, MARGARET.** The professional relationship with the dependent client and his family. In: Adams, Margaret. *Mental Retardation and Its Social Dimensions.* New York, New York, Columbia University, 1971, Chapter 7, p. 151-175.

Many problems unique to the social worker's professional relationship with SMR clients arise from the disability's chronicity. The SMR's family becomes the primary client. The social worker can help them adjust emotionally to the fact of retardation and set realistic goals for the care of the retarded member. Help may also involve secondary issues such as marital conflicts or personality problems of the parents. As for the retarded person himself, it is important to assess accurately the extent and kind of social involvement of which he is capable. With the SMR client, the major contribution will lie in the degree of genuine acceptance and concern the social worker can feel toward the client and be able to convey to him. The moderately retarded client must be helped to understand impending decisions and their effect on him, which can make a good deal of difference in whether he responds in a cooperative or obstructive way. (12 refs.) - *J. C. Moody.*

17 **ADAMS, MARGARET.** The professional relationship with the mildly retarded client. In: Adams, Margaret. *Mental Retardation and Its Social Dimensions.* New York, New York, Columbia University, 1971, Chapter 8, p. 176-204.

Social characteristics associated with mild retardation which might require a special handling of the social worker-client relationship with adults and adolescents include: poverty-stricken and socially deprived environment; irregular and inconsistent care at home during childhood coupled with non-relevant experience at school; involvement in court charges of parental neglect or delinquent acts of their own resulting in removal from the childhood home; and, for the illegitimate, inadequate foster care. In many cases, it is hard to determine how much of a client's maladaptive behavior and low intellectual functioning is innate and how much has been created by stunting social experiences. Mild retardation of societal origin inevitably contains some strong emotional components derived from childhood experiences of psychological and material deprivation. The mildly retarded person's difficulties with verbal communication oblige the social worker to find ways of communicating which will make the client feel at ease. Another factor is that the client's poor self-image and expectation of failure create difficulties in helping him to accept a realistic appraisal of his limitations and to cope with his own problems without unduly damaging his already frail self-esteem. In taking on the role of a socially significant adult missing in the client's life, the social worker has the dual task of permitting scope for risk-taking at the expense of failure, and interposing authority when the client's destructive capacity has to be contained. The client's perception of the social worker as an authority figure must be muted without being too permissive and thereby ineffective. (15 refs.) - *J. C. Moody.*

18 **ADAMS, MARGARET.** Some concepts of group work. In: Adams, Margaret, *Mental Retardation and Its Social Dimensions.* New York, New York, Columbia University, 1971, Chapter 9, p. 205-247.

Social group work in MR can be divided into 3 separate patterns, the characteristics of which are determined by the varying needs of different types of clients. For the retardate's family, the major function of group work is to establish communication between them and others who are experiencing similar problems and so reduce the social isolation which often accompanies their stressful situation. For the MR person himself, depending on the degree of disability, group work activities vary from counseling to participation in recreational activity. For the moderately MR, group work has educative functions as well as providing a contrived social experience to simulate that of the normal peer group from which the MRs are excluded because of their conspicuous handicap and lack of social skills. In organizing parent groups, the social worker should consider: criteria for group membership, particularly the types of problems which will provide the best basis for meaningful group interaction; the structured organization of the group; size and time factors; content of group focus; psychological issues, that is, the group's function as an outlet for emotional tensions and for resolution of intrafamily tensions; and the social worker's own role in relation to the group. Social group work with the mildly retarded concentrates on the problem of their marred social

identity and the social experiences which have interfered with satisfactory development in this area. Group work is also especially useful in helping retardates from institutions make the transition to life outside the institution and adjust to the social patterns of the outside community. (31 refs.) - *J. C. Moody.*

19 **SHAH, D. K.; VERMA, S. K.; & TEJA, J. S.** Differential problems in primary and secondary retardates. *Indian Journal of Mental Retardation*, 3(1):25-39, 1970.

A study of 133 MRs (40% were primary or idiopathic retardates; 60% secondary to organic brain damage) revealed signficantly more profound intellectual impairment (IQ of 0 to 20) in the secondary group, but no significant differences with regard to educable (IQ over 50) and trainable subgroup (IQ 20-50) individuals in the 2 groups. Dull mindedness and speech difficultv were shared equally; the groups showed no appreciable differences in sex, age, urban-rural locality, educational achievement, family income, or neurotic traits. The secondary group revealed more family history of mental illness, thumbsucking, hyperkinesis, epilepsy, focal neurological disability and drug treatment; the primary group showed poorer motor development. (22 refs.) - *B. Berman.*

Postgraduate Institute of Medical Education and Research
Chandigarh, India

20 **JORDAN, JOHN E.** A Guttman facet theory analysis of teacher attitudes toward the mentally retarded in Colombia, British Honduras, and the United States. *Indian Journal of Mental Retardation*, 3(1):1-20, 1970.

Five groups of teachers (of varying economic, social, and cultural levels) in 3 nations, assessed for attitudes towards the MR by an instrument based on a Guttman 6-level facet theory, revealed an affective-value-contactual base for attitudes rather than a cognitive-knowledge one. With the effects of age, sex, and education held constant, attitude showed a paradoxical relation to values, a positive relation between intensity and knowledge of MR, but there was no positive relation between attitude and knowledge of MR. Texas teachers scored highest on positive attitudes toward the retarded. Colombia scored highest on control over environment and on attitude intensity. Results strongly support use of facet theory in scale construction. (26 refs.) - *B. Berman.*

Michigan State University
East Lansing, Michigan 48823

21 **BAVIN, JACK.** Subnormality in the seventies: Priority in resources. *Lancet*, 1(7641):285-287, 1970.

Proper allocation of national funds in Britain for helping the MR requires a firm commitment to modern objectives and crucial changes in management. Priorities in use of resources embrace 4 areas: MR hospitals (intensive-care units having attained dramatic results in controlling antisocial and self-destructive behavior), regional (priority going to improving present hospital services rather than developing community-based services), departmental (mental-health needs being far more urgent than those of "proper medicine," especially in preventive and supportive community services), and political (emphasis given to representatives allocating a larger proportion of the national income—at least as much as does the United States—to health and social services.) (1 ref.) - *B. Berman.*

Hammersmith Hospital
London, England

22 **MAVIUS, ANN.** Mentally subnormal children. *British Medical Journal*, 1(5698):757, 1970. (Letter)

Transfer of responsibility for SMR children from the Health Service to the Educational Service is not calamitous. The curriculum of good nursery and infant schools is not very different from that in the best junior training centers for severe retardates; in fact, the best in both systems seeks full development—emotional, intellectual, and physical—of the whole child. What is needed is cooperation between education and medicine. (1 ref.) - *B. Berman.*

National Association for Mental Health
Bristol, England

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23 **GIBSON, JOHN.** Care of mentally retarded. *British Medical Journal*, 1(5698):757, 1970. (Letter)

Widespread disinterest in MRs is illustrated by the absence in medical schools of any formal recognition of retardation as appropriate academic subject matter. (1 ref.) - *B. Berman.*

St. Lawerence's Hospital
Gaterham, Surrey, England

24 **BIALER, IRV.** Relationship of mental retardation to emotional disturbance and physical disability. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 607-660.

MR is related to emotional disturbance and physical disability from the standpoints of etiological-diagnostic considerations, emotional growth-effective behavior association, motivational and phenomenological factors, and various adjustment problems. The etiologic connection between MR and any of these factors involves "pseudoretardation" (a scientific/diagnostic construct), differential diagnosis in treating the multiply-affected retardate, and related problems. Distinguishing MR from sensory impairment and emotional disturbance (an international concern) leads nowhere; it is better to define the retarded child's strengths and needs, and design ameliorative programs for these and preventive measures for those personality defects deriving from the intellectual and emotional deviations caused by social-cultural processes. New research must be directed at those motivational and phenomenological elements in the environment critical in shaping a retardate's behavior. An understanding of the factors causing adjustment problems for MRs (and the physically handicapped) as they interact with their cultural environment will be facilitated by utilization of Lewin's field theory (especially concepts of somatopsychology) and by analysis of current ecological pressures on individual behaviors. (202 refs.) - *B. Berman.*

25 **BENTON, ARTHUR L.** Interactive determinants of mental deficiency. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 661-671.

MR, today, is considered not an entity, but an end-result associated (but not necessarily obligatorially) with a variety of physical, emotional, or social conditions or events. Today's concept rejects "pseudoretardation": it is a potential source of confusion. Sensory, motor, and emotional impairments, in interaction, are overrated as MR determinants, for the deaf and the blind show only minor overall intellectual inferiority; in various cases of combined sensory and mental retardation, there is no independent history of brain damage. However, all types of MR are functional, and early intervention may be a preventive measure as in PKU. Physical determinants of MR include blindness and deafness. A 6-year-old boy with cerebral palsy and blindness (IQ 33) showed minimal speech competence. Intensive treatment to develop the semantic aspects of language elevated his IQ to 60. In another case, a 21-year-old male with deafness gained 30 IQ points in 3 years with the use of a hearing aid. Ameliorating the emotional relationships of a 26-year-old woman (diagnosed as paranoid schizophrenic) produced an IQ gain of 25 points. A graphic model illustrates the interactive behavior of biological, interpersonal, and social factors in MR; the interactions are not simply additive or multiplicative in nature, but they provide a guide. (No refs.) - *B. Berman.*

26 **EDGERTON, ROBERT B.** Mental retardation in non-Western societies: Toward a cross-cultural perspective on incompetence. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation,* New York, New York, Appleton-Century-Croft, 1970, p. 523-559.

Knowledge of MR in non-Western, non-industrial societies is necessary for comparative perspective and theoretical understanding of this problem. MR is everywhere a social and cultural phenomenon. The conventional view is that our complex, technological culture imposes greater difficulties for the retarded; however, Margaret Mead furnishes evidence that primitive societies also brand the retardate, the slow learner. Available data reveal these assumptions, sometimes conflicting, about the retarded: they are no problem in primitive societies since they are dispatched as soon as their condition becomes apparent; among primitives, even the most severely retarded are well treated;

they are imbued with religious significance and, therefore, well treated; and they constitute no problem at all. There is great need to obtain cross-cultural perspectives on incompetence and to discover the environmental stresses, to define the role of social stigma and crucial institutions (such as marriage or the supernatural), and to find functional utility in all social systems for the so-called "incompetent." The retarded must be thought of as social men, as individuals in a society, not simply as "deficits." (91 refs.) - *B. Berman.*

27 **DYBWAD, GUNNAR.** Treatment of the mentally retarded: A cross-national view. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 560-572.

Differences in treatment of the MR in Western and non-Western nations derive from the complexities of culture and social organization. Worldwide, organized efforts of parents of MRs have demanded proper attention and led to the organization of the International League of Societies for the Mentally Handicapped; this group has stimulated international action and shown the similarity of cross-cultural problems (in Kenya, India, Thailand, Nigeria, Latin America, Central Europe, etc.) and the parallels with the United States. Uninformed individuals in primitive societies, and even in the United States, offer proposals to exterminate the retarded; others suggest that the MRs are divinely inspired and possess healing powers. MRs reflect universal problems of malnutrition and employment; in some countries (Poland, for example) cooperatives run their own factories and employ physically and mentally handicapped. Society's problems with deviance (handicap, disability) derive from its technological developments; automation is also taking a toll among the gifted and creative. (21 refs.) - *B. Berman.*

28 **KIDD, CECIL B.** The nature of mental retardation in different settings: Some problems in cross-cultural study. In: Haywood, H. Carl, ed. *Social–Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 573-586.

No other area of medicine is more susceptible to interpretation in social terms than is MR; thus, its handicaps are expressed chiefly in social terms and remedial services are not only medical, but social (special educational, occupational, and social-care). This acute social problem needs better social analysis and planning. Cross-cultural research is elucidating probable patterns and sociocultural-psychological relationships. The traditional medical approach to MR (pathology, genetics, and biochemistry) is now supplemented with cultural-relativistic investigations. The Western world's characteristics (competition, technology, and social adaptations) find parallels in primitive societies, thus demanding a cross-cultural perspective on "social incompetence" to sort out the differing views surrounding MRs in different societies. Epidemiological MR studies reveal that its social and cultural aspects are measurable and delineate patterns of morbidity in given settings. These approaches show that competence can be cross-culturally qualified and quantified and give clues for defining the sociocultural influences relevant to incompetence. (34 refs.) - *B. Berman.*

29 **MILLER, JAMES O.** Cultural deprivation and its modification: Effects of intervention. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 451-489.

The mid-1960's saw the beginning in the United States of massive intervention programs for disadvantaged children and youth, with particular emphasis given to 3-to-5-year olds. Cultural deprivation concerns began years ago with the Juke and Kallikak family studies, stimulated Terman's modification of the Binet scales and the work of Gesell and Hilgard, and inspired today's intervention practices (and the interactionist opposition to genetic-hereditary developmental theory). Cultural disadvantage (generally identified in terms of academic achievement) is linked to external forces (industrial-technological explosion, urban population density, and ineffectual educative systems). These disadvantaged show performance deficits in 4 major classes of variables: cognitive (skills needed for technical and abstract competence), motivational (achievement, persistence, gratification delay), personal style (problem-solving behavior involving self-concept, success-failure orientation, impulsivity-reflectivity, and time-orientation), and physical (nutrition and muscle coordination). A landmark intervention effort was the orphanage studies of Skeels and Dye involving the "houseguest" placement of 10 girls and 3 boys

(average age, 19.4 months; mean IQ, 64.3). After 2 years, this experimental group showed an average gain of 28.5 IQ points in contrast to a control group of 12 (placed in an orphanage cottage) who lost an average of 26.2 points. Subsequent short-term and long-term interventions have shown significant gains for the former in psychomotor and cognitive areas and even more important successes with the latter demonstrating that sustained motivations are needed for continued skill development and maintenance. (93 refs.) - *B. Berman.*

30 **KIRK, SAMUEL A.** The effects of early intervention. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 490-495.

Early environmental intervention with culturally disadvantaged children accelerates intellectual and social development within certain genetic or physical limitations—the earlier the better, apparently, for mental development. Skeels and Dye reported an IQ increase of 28 when intervention began at age 2, in contrast with a 26-point loss for a control group. Different kinds of intervention have different effects on cognitive, motivational, personal-style, and physical variables. Specialized nursery-school programs (direct verbal approach and improvement of learning disabilities) and structured programs appear superior to more traditional procedures in early education; however, test-score increases tend to be lost in the higher grades after intervention stops. There is some evidence that later education may benefit from early intervention, but only longitudinal studies can give a definitive answer. (9 refs.) - *B. Berman.*

31 **MATLIN, NORMAN; & ALBIZU-MIRANDA, CARLOS.** Some historical and logical bases for the concept of cultural deprivation. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 496-507.

The efforts of interventionists to improve the condition of the culturally deprived have largely failed, chiefly because their model for intellectual development does not correspond to human potentialities. The concept of cultural deprivation has lumped together the minorities and the poor—two classifications that do not, theoretically, have very much in common. A minority group may wish to improve economically while retaining group identity. The tacit commitment of the cultural deprivation theory to assimilation is not justified empirically; indeed, the idea reflects a patronizing and myopic attitude on the part of interventionists and many psychologists. Further, studies of the poor indicate that they lack motivation to raise their income. This same lack of motivation negates the influence of education, which the interventionists so eagerly stress and which the poor do not want, since teaching abstracting ability does not deal with their occupational needs. (13 refs.) - *B. Berman.*

32 **TIZARD, JACK.** The role of social institutions in the causation, prevention, and alleviation of mental retardation. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 281-340.

Present-day knowledge and resources could permit all industrial countries to provide humane facilities and personnel to deal with all the needs of the MR (including research), thus reducing its incidence. MR stemming from biosocial causes, generally mild (IQ above 50), exhibits no neurological brain damage and frequently is associated with malnutrition and a host of complex sociocultural factors seen in low socioeconomic milieux (poverty, ignorance, disease, and inadequate community resources). Residential care for MRs is essential but shows wide variations in patient populations and quality (facilities, methodology, and staff). Models of residential care are proposed that include educational establishments or training schools, hospitals, sheltered communities, hostels, and foster homes. MR services must include: outpatient, diagnostic, and counseling services; day-training centers; residential accommodations; sheltered workshops; long-stay homes; and research into epidemiological factors including numbers, geography, and specific problems. (115 refs.) - *B. Berman.*

33 **FEUERSTEIN, REUVEN.** A dynamic approach to the causation, prevention, and alleviation of retarded performance. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York,

New York, Appleton-Century-Croft, 1970, p. 341-377.

Care of retardates is shaped by social institutions and their policy attitudes. There are many approaches to cause, prevention, and alleviation of retarded performance, but there is no one-to-one relationship between statement and policy: inequality of facilities and training is universal. Two major approaches to MR—the passive-acceptant (the retardate is unmodifiable) and the active-modificational (performance levels can be raised)—reflect varying assumptions about the nature of intelligence, retardation, diagnostic evaluation, and the educative process. Courses of action are determined largely by existing power systems, by social, economic, and political ideologies (reflected in social institutions)—all these strongly affect the retardate's eventual adjustment. An active-modificational approach towards amelioration of the retardate's position needs the mediating influences of sensitive, experienced adults providing enriched learning experiences, judiciously using or rejecting techniques (for example, psychological tests), and establishment of enlightened residential settings. Results of an 8-year experience with youngsters placed in kibbutzim (youth villages) in Israel demonstrated positive changes both in work attitudes and antisocial behavior. (47 refs.) - *B. Berman.*

34 **MERCER, JANE R.** Sociological perspectives on mild mental retardation. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 378-391.

The perspective taken towards MR is a fundamental issue in the handling of retardates. Children with comparable disabilities receive different treatment in a medical environment (restricted and grouped by age and handicap) and in homes (free and unregimented, of widely differing ages, with outside contacts). A clinical perspective (a pathological model borrowed from medicine) regards MR as a disease process involving biologic damage, and the retardate—placed in a hospital—is a "patient" or "inmate." This "disease model" permeates many communities, influences the vocabulary of professionals, and promotes the use of more precise diagnostic instruments: only for the severely and profoundly retarded does it furnish an adequate frame of reference. A social-system MR analysis—more frequently applied to mild retardation—has the ability, nevertheless, to create deviant, disesteemed status for those who do not fulfill expected roles in society. It views MR not as individual pathology, but provides a description of one's social position. Its effects may be seen in the school systems, where mere enrollment for the retarded child gives him the status of EMR: a reading problem, a speech problem, an underachiever. Redefinitions are needed; MR must be designated a "social status," a "handicap." The question must be asked, Have special education and mild retardation become sophisticated rationalizations for maintaining the status quo in society? (2 refs.) - *B. Berman.*

35 **PLATT, JOHN R.** Analysis of progress in research into infantile autism. In: Churchill, D. W.; Alpern G. D.; & DeMyer, M. K., eds. *Infantile Autism.* Springfield, Illinois, Charles C. Thomas, 1971, p. 299-314.

An analytic survey of research progress in infantile autism raises first the question whether this pathology is a distinct cluster of behavior traits or a continuum. This should be explored by the method of multiple hypothesis. The concomitants of physiological data (EEG, evoked potentials), such as knee-jerk reflexes, need study in autistic children as do the biochemical and cytological concomitants (urine tests or chromosomal breaks). An important concern is brain structure; however, to investigate this area one would need hundreds of cases to establish types. There are questions of patient history, of perinatal injury, and of pregnancy. Genetic studies of schizophrenia suggest the advisability of seeking a genetic component in autism. The tendency to rule out psychogenic and social concomitants in autism must be opposed. In addition to questions of classification and concomitants, what is the relation of autism to normality? Studies of how the normal person organizes the external world would have relevance to autism. Schedules of reinforcement in operant conditioning are impressive: how can we construct more successful schedules? (No ref.) - *B. Berman.*

36 **HAYWOOD, H. CARL., ed.** *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, 798 p.

Presenting the proceedings of the Peabody-NIMH Conference on Social-Cultural Aspects of Mental

Retardation held at George Peabody College, June 9-12, 1968, this volume is intended for scientists, educators, pediatricians, institutional directors, and others charged with caring for the MR—particularly those who shape public policy. When President Kennedy's Panel on Mental Retardation, in 1963, recommended a series of international conferences on present knowledge in MR (prevention, treatment, education, habilitation, and social integration), George Peabody College was assigned responsibility for one on social and cultural factors in MR. Designed to cull knowledge from the best thinkers and scholars in MR and to initiate provocative dialogues, these papers also contain contributions from individuals not previously identified with the field of MR, but who have competence in related cognitive and social developmental areas. (162 refs.) - *B. Berman.*

CONTENTS: Sociocultural Factors in Cognitive Development; Piaget's Theory of Cognitive Development, Sociocultural Differences, and Mental Retardation; Modeling and Power in Cognitive Development; The Nature-Nurture Issue Reconsidered; Language Acquisition and Cognitive Development; Problems of Language Development in the Retarded; Cognitive Trends in Mentally Retarded Children; Intelligence, Biology, or Learning? Competing Conceptions with Social Consequences; The Role of Social Institutions in the Causation, Prevention, and Alleviation of Mental Retardation; A Dynamic Approach to the Causation, Prevention, and Alleviation of Retarded Performance; Sociological Perspectives on Mild Mental Retardation; Research on Education and Habilitation of the Mentally Retarded; Educational Research Needs in the Field of Mental Retardation; The Development of a Set to Perceive Categorical Relations; Cultural Deprivation and Its Modification: Effects of Intervention; The Effects of Early Intervention; Some Historical and Logical Bases for the Concept Cultural Deprivation; Intervention with Mothers and Young Children: The Focal Endeavor of a Research and Training Program; Mental Retardation in Non-Western Societies: Toward a Cross-Cultural Perspective on Incompetence; Treatment of the Mentally Retarded: A Cross-National View; The Nature of Mental Retardation in Different Settings: Some Problems in Cross-Cultural Study; Cultural Deprivation and Cognitive Growth; Relationship of Mental Retardation to Emotional Disturbance and Physical Disability; Interactive Determinants of Mental Deficiency; Emotional Disturbance in Mental Retardation: A Review of Recent Research in France; Culturally Related Reproductive Factors in Mental Retardation; Examples of Current Studies of Reproductive Casualty; Some Thoughts on Sociocultural Retardation; Some Perspectives in Social-Cultural Aspects of Mental Retardation.

37 **LORR, MAURICE.** Methodological suggestions. In Churchill, D. W.; Alpern, G. D.; & DeMyer, M. K., eds. *Infantile Autism.* Springfield, Illinois, Charles C. Thomas, 1971, p. 98-103.

Methods are suggested to facilitate classification and description of infantile autism. Distinction should be made between trait (a universally present, relatively enduring condition) and syndrome (a complex of symptoms and complaints that tend to go together). Dimension and type—both emerge from an analysis of the data matrix of observations—must be clearly separated: dimension (traits and some syndromes are best encompassed here) suggests a quantitative continuum (extraversion, anxiety, or aggressiveness); type suggests a subgroup with a distinguishing pattern of characteristics. For clarity, typology must be distinguished from concepts of discrimination and classification. Assignment (or classification) is analogous to diagnosis and comes after discrimination (statistical discrimination distinguishes between 2 or more known groups), which is distinct from typological analysis. The rule is that each type must be defined by as few variables as possible. In finding types of classes for the childhood behavior disorders of "schizophrenia," "psychosis," or "infantile autism," factor analysis is unsuitable. A sound classification will result from grouping children on fundamental bases: intelligence level, behavior, physiology, and neurologic deficit. (4 refs.) - *B. Berman.*

38 **MENOLASCINO, FRANK J.** The description and classification of infantile autism. In: Churchill, D. W.; Alpern, G. D.; & DeMyer, M. K., eds. *Infantile Autism.* Springfield, Illinois, Charles C. Thomas, 1971, p. 71-97.

In classifying "early infantile autism" among the severe emotional disturbances of early childhood, autism as a descriptive label is too loosely used for a wide array of behaviors (emotional, physical, neurologic, and special sensory) shown by a variety of handicapped children. Classification

difficulties derive from concepts of childhood psychotic reactions, and these must be classified by defining the various syndromes, behavioral dimensions, mannerisms, and motor phenomena. In particular, the responses to patterned environmental stimuli and the quality of interactions must be defined. Further, classification of children's psychotic behavior requires diagnosis of language development and the behavioral limits of young moderate and severe MRs with primitive behavior. These disorders all present developmental dissolution of the self-concept system not consonant with meaningful personal-social interaction, and minimal criteria for assessing the existence of such a condition include "affective unavailability" (refusal to interact) and a major interest in inanimate objects. A research approach for investigating populations of children with infantile autism is suggested. (67 refs.) - *B. Berman.*

39 **CHURCHILL, DON W.; ALPERN, GERALD D.; & DEMYER, MARIAN K.,** eds. *Infantile Autism.* Springfield, Illinois, Charles C. Thomas, 1971, 340 p.

This symposium on infantile autism—intended for investigators, clinicians, and graduate students—presents an in-depth coverage of clinical and laboratory findings on the biological, neurological, psychological, social, and cultural aspects of autism. An inability manifested at the very beginning of life to relate in the ordinary way to people and situations, autism is still the puzzling entity identified by Kanner in 1943. No consensus emerges on whether autism is a clinical entity or a group of entities, on whether it has genetic, metabolic, neurologic, social or psychologic origins, or on how its victims will fare, can be helped, or treated. Its complexities require large-scale collaboration among investigative groups. The symposium sought to sustain a strong research effort, worked for a consensus on minimal identifying and specifying criteria for the syndrome, and developed an instrument for facilitating cross-study comparisons. (297 refs.) - *B. Berman.*

CONTENTS: The Description and Classification of Infantile Autism; Social and Adaptive Behaviors of Autistic Children as Measured in a Structured Psychiatric Interview; The Description and Classification of Infantile Autism; Methodological Suggestions; Considerations in the Development of a Behavioral Treatment Program for Psychotic Children; A Psychoanalytic Understanding of Infantile Autism and Its Treatment; Differential Effects of Behavior Modification in Four Mute Autistic Boys; Discussion of Treatment Approaches; Sensory Evoked Responses of Autistic Children; Psychobiological Referents for the Treatment of Autism; Neurophysiological Correlates of Apparent Defects of Sensori-Motor Integration in Autistic Children; Analysis of Progress in Research into Infantile Autism.

40 **RUTTER, MICHAEL.** The description and classification of infantile autism. In: Churchill, D. W.; Alpern, G. D.; & DeMyer, M. K., eds. *Infantile Autism.* Springfield, Illinois, Charles C. Thomas, 1971, p. 8-28.

Infantile autism is a distinctive, recognizable syndrome, different from other psychotic conditions, evidencing important distinctions in: very early age of onset; sex (more common in boys); socioeconomic background (common in middle- or upper-level families of above-average intelligence); language, perceptual, and other psychological variances; unknown etiology; treatment (little systematic knowledge of responses), and long-term outcome (only a small number recover by adolescence). Since symptoms characteristic of autism may occur in many other conditions, the diagnosis should be confined to cases where the onset is earlier than 30 months of age and where there are speech and language delays plus ritualistic behavior. Autistic children may have very high or low IQ, but there is no qualitative behavioral difference in regard to intelligence. IQ, therefore, as well as presence or absence of organic brain dysfunction, are not considered in making a diagnosis, although both have great clinical significance and should be applied to additional classification axes. Classification of infantile autism presents special difficulties: there are strong reasons for placing it with developmental disorders and less cogent ones for calling it a psychosis, but it appears better, at present, to give it a distinct category. (43 refs.) - *B. Berman.*

41 **BRAZIER, MAC.** What do we mean by "segregation?" *Australian Children Limited,* 3(12):376-380, 1970.

The basic needs of the MR can best be met by "segregation"—in the best sense of the term. In a community of his peers, the retardate can gain satisfaction from mutual sharing of responsibilities, attain human dignity and freedom, and have the protection he needs from the outside world in which he cannot cope. Opponents of "segregation" have distorted—not deliberately—its implications; confused by the conflict between the

retardate's needs and their own hopes for these afflicted, they berate the motives of parents who arrange permanent "homes" for their offspring. "Segregation" in this best sense shuns the selfish parent's motives, but welcomes the humaneness and "human rights" aims of the new Colac Regional Centre with its modern provisions for 450 MRs. (6 refs) - *B. Berman.*

No address

42 Education of mentally handicapped children. *Lancet,* 1(7646): 579, 1970. (Note)

The transfer of responsibility for the education of SMR children from the Department of Health and Social Security to the Department of Education and Science is to be proposed shortly in Parliament. A spokesman for the latter department has stated that considerable exclusion of these children exists under the present system although places in training centers have doubled since 1960. At the present time, about 20,000 children are in the junior training centers and 6,000 more are in hospitals for the MR. (No refs.) - *M. S. Fish.*

43 **REICHARD, CARY L.** Community expectations of the mentally retarded. *Focus on Exceptional Children,* 1(9):9-10, 1970.

To alleviate existing negative attitudes in the community, special educators must accentuate the positive aspects of the MR. While it is important to know the MRs' limitations, it is equally important to be informed of their abilities. Employers and community residents must be made aware that MRs can become gainfully-employed, self-sufficient, socially interacting citizens if given the opportunity. (2 refs.) - *C. L. Pranitch.*

University of Florida
Gainesville, Florida 32603

44 **GROTBERG, EDITH H.** Neurological aspects of learning disabilities: A case for the disadvantaged. *Journal of Learning Disabilities,* 3(6):321-327, 1970.

The puristic tendency to attribute all learning disabilities to neurological factors tends to cause neglect of disadvantaged children who show learning-disability symptoms that go counter to such diagnosis. Disadvantaged children function just as do advantaged children with learning-disability manifestations, with or without quantitated neurological damage. The true nature and origin of learning disabilities is not fully understood, nor do we yet comprehend how symptoms vary in meaning for different socioeconomic, cultural, and ethnic groups. Still in doubt, also, are the effects on performance of damaged as opposed to undeveloped nerves, or how motivation influences neural development. Sensory deprivation, language restrictions, and inadequate motivation may interact in disadvantaged children to produce traits similar to those of learning disabilities; thus a poor visuomotor performance on a test by a disadvantaged child may reflect, not neural damage, but low motivation. There is some knowledge of the symptomatology of learning disabilities, and data show that similar materials, no matter what the source of the learning disability, achieve good results with both advantaged and disadvantaged children. (23 refs.) - *B. Berman.*

American University
Washington, D.C. 20016

45 **GUPTA, S. C.** An analysis of 300 mentally retarded cases. *Indian Journal of Mental Retardation,* 3(2):69-74, 1970.

An analysis of 300 cases of MR registered at a child guidance clinic revealed 197 cases of SMR, 69 cases of moderate MR, and 34 cases of mild MR. The majority of the clients (74%) were in the age group 1 to 10 years. There were twice as many males as females, and many were from lower income groups. Among the main reasons for clinic consultation were speech defect (64.7%), lower understanding (47.7%), and temper tantrum and behavior disorder (42%). (13 refs.) - *J. K. Wyatt.*

K. G.'s Medical College
Lucknow, India

46 **MUJOO, H. N.; & SHUKLA, S. K.** Evaluation of the terms "mental retardation" and "mentally retarded people" by a sample of university students. *Indian Journal of Mental Retardation,* 3(2):62-68, 1970.

Students in an undergraduate psychology class tended to be unfavorable to the terms "mental retardation" and "mentally retarded people." Osgood-type rating scales designed to assess evaluational reactions toward the 2 terms were administered to 40 Ss. They tended toward slightly severer evaluations of MR people than of the

disability of MR. Both trends failed to reach statistical significance. (5 refs.) - *J. K. Wyatt.*

Department of Education, Lucknow University
Lucknow - 7, India

47 **MYRIANTHOPOULOS, NTINOS C.** An epidemiologic survey of twins in a large, prospectively studied population. *American Journal of Human Genetics*, 22(6):611-629, 1970.

In a study of 615 pairs of twins, 259 were white, 331 were Negro, and the remaining 25 were mainly Puerto Rican. Incidence of monozygotic and dizygotic, respectively, was 34.6% and 65.4% among white twins, 28.8% and 71.2% among Negro twins, and 60% and 40% for Puerto Rican twins. There was a frequent increase of dizygotic twinning in whites and Negroes until ages 35 to 39; incidence decreased sharply after this age. The rate for fetal and neonatal death was 17.3% and was significantly higher among like-sexed twins. This difference was almost entirely due to deaths in male pairs. The most common cause of death was respiratory distress syndrome (17.4%). Other identified causes of death included anoxia and asphyxia (7.5%), malformation (6.6%), and trauma and hemorrhage (6.1%). The cause of 15.9% of the deaths was unknown. Malformation was significantly higher in monozygotic than dizygotic twins. (21 refs.) - *J. K. Wyatt.*

National Institute of Neurological Diseases and Stroke
Bethesda, Maryland 20014

48 **BEGAB, MICHAEL J.** Impact of education on social work students' knowledge and attitudes about mental retardation. *American Journal of Mental Deficiency*, 74(6):801-808, 1970.

Questionnaires and self-administered personal-data sheets submitted by 567 students from 7 graduate schools of social work revealed that formal class instruction apparently has little effect on the students' knowledge or attitudes towards MR. Variables other than education which might influence such attitudes were classified as demographic-ecological and antecedent life experience. Students start out with different concepts and attitudes on MR in accord with their antecedent life experiences; those with no contacts derive their attitudes from prevailing cultural values. Education left their misconceptions unchanged. Most significant was the finding that *how much* one knows is not as significant in attitude formation as *how* one learns (the affective experiences) and *where*. Cognitions, feelings, and action tendencies were related consistently only at the extreme valences of the attitude continuum. (6 refs.) - *B. Berman.*

National Institute of Child and Human Development
Bethesda, Maryland 20014

49 **HEAL, LAIRD W.** Research strategies and research goals in the scientific study of the mentally subnormal. *American Journal of Mental Deficiency*, 75(1):10-15, 1970.

In studying MR, a researcher selects his comparison groups in direct relation to his research goals, and his goals are reflected in the comparisons he makes. These goals are to define abnormality in terms of retardation and defect, study normal learning and motivation processes, and examine learning and motivation in MR. The appropriate strategies for these goals involve comparisons of: the longitudinal progression of cognitive stages in many Ss and of defectives with chronological peers, groups with the same intellectual ability on tasks theoretically relevant to learning and motivation, and groups with comparable MR on the above tasks. In general, research should be done with multiple predictors rather than with the limited single predictor, IQ or MA. (4 refs.) - *B. Berman.*

George Peabody College
Nashville, Tennessee 37203

50 **HAYWOOD, H. CARL.** Mental retardation as an extension of the developmental laboratory. *American Journal of Mental Deficiency*, 75(1):5-9, 1970.

Study of the nature and development of intelligence requires investigation of MR, if the whole distribution scale is to be considered, and application of appropriate strategies. Among the strategies are: deviant-groups model; sampling to cover the gamut of intelligence; assumption that retardates are quantitatively, not qualitatively, different from non-retardates, thus avoiding lumping the 2 groups separately; awareness that an MA match has limited usefulness; a correlational strategy to encompass the widest possible range on the psychometric-intelligence dimension; and, in

selecting a task, consideration that a S's intelligence affects his interpretation of the task. (8 refs.) - *B. Berman.*

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Nashville, Tennessee 37203

51 Outlook for the mentally retarded. *Nursing Mirror,* 130(25):13, 1970.

Parents should be provided with early diagnosis and accurate assessment of the extent of their MR's handicap. Parents need to know what facilities are available, and guidance and help involving health visitors and doctors must be a continuing process. Institutionalized MRs need a warm, homelike, supportive atmosphere rather than large institutional custodial care. A team consisting of nurse, educator, and social worker would be more desirable than the usual ward routines. (No refs.) - *C. L. Pranitch.*

52 **GORMAN, V.; & ELLIS, B. C.** To dispel confusion. *Nursing Mirror,* 130(26):37-38, 1970. (Letter)

A plea is made for an interdisciplinary approach to MR patient care, training, and education. Cross-sectional exchange of views with each member recognizing other members as making indispensable contributions is needed to form an effective therapeutic team. The approach should be which group of varied experts can best deal with specific deficiencies of different groups of patients, rather than which expert can do what for the patients. (1 ref.) - *C. L. Pranitch.*

Northgate Hospital
Morpeth, Northumberland, England

53 **O'HARA, J.** Attitudes in subnormality nursing. *Nursing Mirror,* 130(5):20-21, 1970.

Existing negative attitudes toward the MR are rooted in history. The 1913 Mental Deficiency Act was primarily concerned with isolating the MR from the community and preventing their procreation. Until the 1950's, the main function of the nurse in an institution was considered to be maintaining order and discipline in the wards. (9 refs.) - *C. L. Pranitch.*

Monyhull Hospital
Birmingham, England

54 **MacKINNON, MARJORIE C.; & FREDERICK, BARBARA S.** A shift of emphasis for psychiatric social work in mental retardation. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 21, p. 493-503.

The psychiatric social worker in MR must shift her customary focus from the emotionally disturbed to the special needs of retardates and their families—to an understanding that the retardate is born with his problem, the emotionally disturbed acquire theirs from their environment. The social worker must examine her own feelings about this new commitment—that she is working with an irreversible condition and with the chronic sorrow of parents accustomed to negative encounters with professional personnel. These parents will need a great deal of time to learn to accept their retarded child, and both parents must be called upon to provide family background. The diagnostic period will require detailed investigation of pregnancy, delivery, and developmental landmarks, and the social worker must be skilled in dealing with parental guilt feelings. Following diagnosis, family therapy—with or without siblings—should be adapted to individual needs, and should document and validate each person's contributions, working away from causation towards resolutions. Finally, the social worker must guard against premature recommendations for institutionalization and recognize the retarded child's potential contribution to the family's values and sense of appreciation. (25 refs.) - *B. Berman.*

55 **CODA, EVIS.** Community psychiatry and mental retardation. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 22, p. 507-526.

Problems and issues pertaining to the recently developed multidisciplinary community clinic for the retarded are illustrated in the Kennedy Child Study Center—a child psychiatry outpatient clinic.

Geared specifically to the needs of MRs (whom child-guidance clinics tend to exclude on the grounds that intellectual impairment limits the use of psychotherapy), it attempts to meet community needs, works closely with the local school system, and responds to any parent whose child's problems are interfering with family-school adjustment. Its procedures include parent orientation, intake interviews, follow-up visits, and a range of therapies. The special psychiatric outpatient clinic, which handles emotional problems referred from the pediatric clinic, considers non-verbal dimensions, possible use of psychoactive drugs, and the gamut of developmental problems. Periodically, modifications for special needs have included crisis assistance (inviting "drop-in" visits by parents who are assisted creatively by a clinical team) and aid for the multiply handicapped retardate for whom there is no one "specialist." The focus is on the realistic dimensions of treating MRs: personal-identity problems, the child's awareness of how society views him, and the unique needs of the parents of retardates. (2 refs.) - *B. Berman.*

56 **BLATT, BURTON.** Empty revolution beyond the mental. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 24, p. 542-552.

The revolution on behalf of the MRs is an empty, inert, formless hoax on a random journey led by caretakers of the oppressed. The condition of the retarded remains unchanged—note the pitiful annual budgets for state hospitals and schools for the retarded, the impoverished community programs, the indifference of the medical schools and schools of social work and nursing. At fault are the different views held of mental illness and MR. The first is regarded as a sickness where there is hope of recovery; MR is considered without hope or cure, nothing but a daily drudgery of habit training. Mental health people have denigrated the term "mental deficiency" and the purpose of MR amelioration. Nevertheless, they must realize that MR workers want to be part of the field of mental health—there never will be progress until the two have joined forces. The mental health profession must either abandon "oligophrenic racism"—set free the MR workers—or accept them as full equals. (No refs.) - *B. Berman.*

57 **MENOLASCINO, FRANK J., ed.** *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970. 764 p.

Designed as an introduction to the psychiatric aspects of MR (not an introductory MR text) for the psychiatric practitioner, this collaborative summarization of current psychiatric thinking and methodology in MR brings together some major figures in this area and presents a general view and assessment of the chief psychiatric involvements in mental subnormality. Structurally, the volume proceeds from general to specific aspects of a problem, while preserving a continuity among the book's major segments. A common core of interest with allied fields is aimed at providing profitable reading for psychologists, social workers, nurses, educators, child development workers, and vocational rehabilitation counsellors. (No refs.) - *B. Berman.*

CONTENTS: Unique aspects of emotional development in mentally retarded children (Webster); Emotional problems in mentally retarded children (Chess); Emotional disturbance and mental retardation: etiologic and conceptual relationships (Bailer); Apparent and relative mental retardation: their challenges to psychiatric treatment (Bernstein and Menolascino); Infantile autism: descriptive and diagnostic relationships to mental retardation (Menolascino); Diagnostic and treatment variations in child psychoses and mental retardation (Creak); The life course of children with autism and mental retardation (Bender); Down's syndrome: clinical and psychiatric findings in an institutionalized sample (Menolascino); Rumination, mental retardation, and interventive therapeutic nursing (Wright and Menolascino); Psychotherapy of the mentally retarded: values and cautions (Lott); Use of behavior therapy with the mentally retarded (Gardner); Early psychiatric intervention for young mentally retarded children (Woodward, Jaffe, and Brown); Psychopharmacology and the retarded child (Freeman); Psychopharmacology as a treatment adjunct for the mentally retarded: problems and issues (Colodny and Kurlander); The use of psychopharmacological agents in residential facilities for the retarded (Lipman); Methodological considerations in evaluating the intelligence-enhancing properties of drugs (Wolfensberger and Menolascino); Group therapy approach to emotional conflicts of the mentally retarded and their parents (Mowatt); Group approaches to treating retarded adolescents (Slivkin

and Bernstein); Counseling parents of the retarded: the interpretation interview (Solomons); A theoretical framework for the management of parents of the mentally retarded (Wolfensberger and Menolascino); A shift of emphasis for psychiatric social work in mental retardation (MacKinnon and Frederick); Community psychiatry and mental retardation (Coda); The psychiatric consultant in a residential facility for the mentally retarded (Beitenman); Empty revolution beyond the mental (Blatt); Roadblocks to renewal of residential care (Dybwad); Human values as guides to the administration of residential facilities for the mentally retarded (Potter); Law and the mentally retarded (Allen); Mental retardation and child psychiatry (Tizard); Experiences of pregnancy: some relationships to the syndrome of mental retardation (Cohen); The training of pediatricians and psychiatrists in mental retardation (Cytryn); Facilitation of psychiatric research in mental retardation (Wolfensberger); The research challenge of delineating psychiatric syndromes in mental retardation (Menolascino); Psychiatry's past, current and future role in mental retardation (Menolascino).

58 **MENOLASCINO, FRANK J.** The research challenge of delineating psychiatric syndromes in mental retardation. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, 1970, Chapter 32, p. 690-705.

Psychiatric, psychological, medical and family assessments of 256 emotionally disturbed MRs (153 boys, 103 girls; CA 1.6 to 14.2 years) confirmed the frequent occurrence of psychiatric disorders in young retardates—disorders which may differ qualitatively from those in nonretardates. The most frequently observed emotional disturbances were: chronic brain syndromes with behavioral psychotic reactions (177), functional psychoses (8), adjustment reactions (39), and psychiatric disorders not further specified (11). Each group presented its own symptom complex and treatment needs. All cases underscored an urgent need for more specific therapies for such chronically handicapped children and emphasized various general and specific dimensions relevant to diagnosis and treatment of the psychiatric aspects of MR. The retarded child has a personality of his own, and his need for clinical research does not vanish because his IQ is below 70. (22 refs.) - *B. Berman.*

59 **WOLFENSBERGER, WOLF.** Facilitation of psychiatric research in mental retardation. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 31, p. 663-689.

Tensions between opposing forces of continuity and change are seen in human management, where administrators of social organizations support the status quo against the innovations of the researcher. In human-management agencies, 4 areas reflect this tension: the threat of change, the alienation and differences in approach between the practitioner and the researcher, the clinician's perception of the researcher's personality as unfeeling and depersonalized, and the ambiguous role and status of the researcher in a service-oriented agency. Focal to this tension is the administrator's suspicion of the researcher's motives and the consequent isolation of research. Administrators must take an honest look at their function and consider all relevant aspects in decisions on supporting intra-agency research, what kinds of research to support, and whether to bring in extra-agency personnel. Resolving the tension between administrator and researcher will determine the success or failure of psychiatric research in MR. (48 refs.) - *B. Berman.*

60 **MENOLASCINO, FRANK J.** Psychiatry's past, current and future role in mental retardation. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 33, p. 709-744.

New recognition of the needs of retardates and their families has come from enlightened persons in all walks of life. A review is presented of the historical aspects of psychiatry's approach to care and training of MRs, its evolution into its current involvement, and implications for psychiatry's future role in correlating and interpreting the diagnostic findings of multidisciplinary teams. For effective involvement, the psychiatrist's training will necessarily embrace instruction in the broad

diagnostic demands of MR, assessment of quantitative and qualitative aspects, treatment management, techniques for transmitting and interpreting diagnostic findings to families, and, with the growing emphasis on community psychiatry, coordination of agencies and resources which provide community service. Training in modern techniques in MR can give mental-health personnel greater insights and superior functioning in the constantly evolving demands for their services. (63 refs.) - *B. Berman.*

61 **COHEN, RICHARD L.** Experiences of pregnancy: Some relationships to the syndrome of mental retardation. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 29, p. 633-651.

Training programs in the relation between stress in pregnancy and effects on maternal perceptions and attitudes in relation to child development given to medical students, obstetric and pediatric residents, nursing students, and child psychiatry fellows are regarded as having great potential in significantly reducing developmental retardation in children. Training data were obtained by open-ended, adaptively oriented interviews of large numbers of randomly chosen pregnant women in a university clinic. Behavioral cues on Ss' acceptance or rejection of their pregnancies were gathered from conditions they described. These conditions fell into 4 categories: inadequate preparation for child bearing or rearing; adverse previous experiences; deficient dependency supports; and some perceived maternal condition that might worsen. By providing insight for these professionals into the mother-infant interaction at a point where intervention has its greatest ameliorative possibilities, such training must be widely applied to medical and nursing personnel, who have the most intimate contact with young pregnant women, and must include intensive follow-up study of children of high- and low-risk pregnancies. (22 refs.) - *B. Berman.*

62 **TIZARD, JACK.** Mental retardation and child psychiatry. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 28, p. 615-632.

Despite the overlap between MR and psychiatry, there has been little contact between their practitioners. Although research in MR has suffered because of its isolation from other medical disciplines, the last 30 years have seen great strides in the biochemistry and genetics of MR as well as in knowledge of its epidemiology, psychological overtones, teaching methods, and social use of retardates and handling of their financial problems. Applications of intelligence testing, classification by grade or severity, psychological analysis of specific deficits, and modifications of child-developmental practices have been especially significant for MR. No comparable growth has occurred in child psychiatry—largely because the scientific methods standard in MR research are little used by child psychiatrists. The latter need further clarification in classification of disorders by grade of defect, treatment standardization, epidemiology, and etiology. Use of the same rigid research standards found in MR would benefit child psychiatry. (22 refs.) - *B. Berman.*

63 **WOLFENSBERGER, WOLF; & MENOLASCINO, FRANK J.** Methodological considerations in evaluating the intelligence-enhancing properties of drugs. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 16, p. 399-421.

Many studies have been made of drugs which will improve a retardate's intellectual capacity, but few adequate tests of drug efficiency have been made. A study must explore a drug's developmental effects, consider the nature of intellectual growth, and avoid the "magic bullet" model, since MR is not a disease. Data suggest the best Ss are mildly retarded children (MA above 2-3 years; CA near or below 6) of varied etiologies without secondary handicaps (sensory, orthopedic, seizures, etc.) living at home under fairly stimulating conditions. Other concerns involve a drug's toxic side effects, the need to use individualized dosages, ethical implications of drug testing, and research designs. Experimental designs in such studies must vary from the traditional, since the drug itself is not the experimental variable; the variable is the interaction of stimulative experience and the drug. (30 refs.) - *B. Berman.*

64 **FIERRO, ALFREDO.** El hombre deficiente (The retarded man). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, Epilogue, p. 317-325.

Preventive medicine can reduce the prevalence of MR. Problems at birth, which can cause serious MR, could be avoided by careful medical attention. Medical research can help, but first there must be social pressure to direct this research toward the MR. This is why MR is not only a medical problem, but also a political and social problem as well. As long as production is held as the most important value of society, the MR will not be completely incorporated. More humanitarian values are needed to do complete justice to these people. A real social and cultural revolution is needed to attack the problems of MR in a realistic manner. (No refs.) - *R. N. Apold.*

65 **VAZQUEZ, JESUS MARIA.** El problema sociologico (The sociological problem). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, Chapter 6, p. 145-160.

Important aspects of MR are discussed from a sociological viewpoint. In exploring the etiology of MR, multifactorial heredity and the environmental theory are reviewed along with the belief of some authors that these theories are compatible and complement each other. The positive steps taken by Spanish society toward understanding and helping the MR are outlined. The many problems that remain unsolved are mentioned. Social integration of the MR is considered to be one of the most acute problems. Social evaluation (which refers to the number of existing relations between the MR, his family, and the community) is examined. The home, as the first social environment which the MR child encounters, is discussed and the problems that parents face at the arrival of an MR child are mentioned. The range of attitudes found in parents of MRs is described along with the psychological, socio-cultural, and economic difficulties encountered by these families. Problems cited by the Parent Association include lack of centers, specialized teachers, scholarships, and boarding schools. Diagnostic and therapeutic centers list lack of understanding, education, and economic means in the families of MRs as the main problems. (No refs.) - *R. N. Apold.*

66 **SECRETARIADO DE EDUCACION ESPECIAL DE LA COMISION EPISCOPAL DE ENSENANZA.** *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, 336p.

Problems associated with the MR are examined from the medical, psychological, family, educational, sociological, politico-legal, administrative, labor and religious points of view. In addition to characterizing the MR, special problems encountered in the infant and adult stages are considered. In general, this book attempts to present the retarded realistically in spite of his tremendous limitations—with the hope of realizing his enormous possibilities. (28-item bibliog.) - *R. N. Apold.*

67 **EGUIA, JOSE I.** Caracterizacion de la deficiencia mental (Characterization of mental retardation). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, Chapter 1, p. 13-32.

Three characteristic elements of MR are discussed: a deficit in mental faculties and a consistent inferior mental output; a difficulty in integrating social personality and affectivity with the environment, together with the inadaptability and imbalance that this brings; and a somatic substrate affected by irregularities in the development and maturation of the organism. The MR terminology established by the World Health Organization in 1953 is explained and used throughout the discussion. A classification scheme based on light, moderate, severe, and profound MR is described and compared with similar classifications used in different countries. MR is viewed as a dynamic process that should be studied with an open mind; the field should adopt a progressive stance which will improve the position of those affected. (No refs.) - *R. N. Apold.*

68 **MOYA, GONZALO.** El problema medico (The medical problem). In: *Deficiencia*

Mental, Cuestion Urgente (Mental Retardation, Urgent Question). Madrid, Spain, Euramerica, 1970, Chapter 2, p. 33-60.

The discussion begins with considerations of the definition of "subnormal," the medical specialty which should treat the MR, and the opinion that medicine cannot help the MR. The procedures used to ascertain that a person is MR include detailed tests for sight and hearing, EEG, pneumoencephalography, arteriography, chromatography of amino acids and sugar, histological and histochemical tests, and chromosome studies. The reason why psychological and intelligence tests are not used in diagnosing MR are explained. The treatment of various conditions which are due to MR is outlined. In the prevention of MR, sterilization and euthanasia are viewed as unacceptable solutions. It is suggested that centers should be created where wide range screening tests would be conducted for people who want to get married. Such tests would determine the probability of a couple having MR children. Careful medical attention at birth and the first few months of life should help prevent MR. The organization for detection, prevention, and treatment of the MR in Spain is described. (3-item bibliog.) - *R. N. Apold.*

MEDICAL ASPECTS – Diagnosis (General)

69 **MILLMAN, HOWARD L.** Minimal brain dysfunction in children–Evaluation and treatment. *Journal of Learning Disabilities*, 3(2):89-99, 1970.

Minimal brain dysfunction must not be ignored as a possible cause of behavioral, psychological, and educational difficulties in children. Near average, average, or above-average in intelligence, such children manifest perceptual, conceptual, language, memory, impulse, and other indications of central nervous system disability. There is need for competent diagnosis (through staff education, case history, and psychological testing) in evaluation centers equipped for pediatric, neurological, optometric, speech, and hearing assessments. Sensitive discussions and analyses of a child's behavior with parents must precede assignments to special classes or schools. Particular problems require medication (by pediatrician, neurologist, or clinical psychologist). Individual cases may require developmental optometric training, individual or group psychotherapy, or recreational programs involving gross and fine visual-motor activities. Parental guidance is facilitated by membership in appropriate associations and counseling groups. It is urgent to end pressures on these children whose central nervous system disabilities go unrecognized. (56 refs.) - *B. Berman*

Children's Village
Dobb's Ferry, New York 10522

70 **BATTLE, CONSTANCE U.** Fetal electroencephalography and the fetal brain. *Clinical Pediatrics*, 9(3):148-151, 1970.

Fetal electroencephalography (EEG) gives promise of predicting or recognizing, *in utero*, labor and delivery factors involved in the 250,000 brain-damaged infants born each year. Safe to use, human-fetal EEG is furnishing information during labor and developing guides to fetal and maternal management. EEG applications are many. Reflecting the summated electrical changes from the cortex, EEGs show cortical potentials changing in response to medications and asphyxia and signal the danger of the brain's response to hypoxia. EEG's sensory-evoked response technique explores neurologic integrity and brain maturational level. EEG records the unborn's response to drugs given to the mother and warns the obstetrician of fetal distress. EEG studies might be used to identify prenatal anomalies. By permitting the "birth barrier" to be crossed, EEG may be focal in the new specialty of perinatal medicine. (22 refs.) - *B. Berman.*

University of Rochester School of Medicine and Dentistry
Rochester, New York 14620

71 **JOHNSON, CHARLES FELZEN.** Abnormal thumbs and physical diagnosis: Anomalies of the thumbs as signs of congenital disorders in organ systems. *Clinical Pediatrics*, 9(3):131-143, 1970.

There is frequent association of hand abnormalities with various congenital abnormalities including MR, and when facies alone do not provide diagnostic clues to a disorder, the hand (especially the thumb) should be carefully examined. Thumb abnormalities run the gamut from its absence to hypoplasia to duplication. In one group of patients with upper-extremity radial defects, 25% had congenital heart disease. Abnormal thumbs include short as in brachydactyly, broad along with strange facies, retroflexible, low-set, bifid as in polydactyly, and flexed. The flexed thumb should not be confused with the thumb sign, in which the thumb tip protrudes beyond the ulnar aspect of the palm when the fist is closed.

Thumb abnormalities require complete study of specific organ systems. (72 refs.) - *B. Berman.*

University of Iowa
Iowa City, Iowa 52240

72 **REYNOLDS, JOHN W.** Assessment of fetal health by analysis of maternal steroids. *Journal of Pediatrics,* 76(3):464-469, 1970.

Since the pregnant woman excretes large amounts of urinary estriol which is produced by the fetus and placenta functioning as an integrated unit, this steroid excretion can be used to monitor general fetal function. A maternal estriol excretion of less than 4 mg/day is found in fetal death, anencephaly, adrenal cortical hypoplasia, and high-dose maternal steroid therapy. Persistent low estriol excretion (4 to 12 mg/day) is associated with fetal growth retardation. A rapidly falling preterm estriol indicates failing fetal health and hypoxia and should alert the obstetrician to possible intervention and the pediatrician to potential neonatal distress. (33 refs.) - *E. L. Rowan.*

University of Minnesota Hospitals
Minneapolis, Minnesota 55455

73 Is dyslexia a disease? *Journal of the American Medical Association,* 212(9):1515-1516, 1970. (Editorial)

True developmental dyslexia is a striking syndrome, but accounts for only a small portion of the total number of poor readers. A physician encountering a poor reader should ascertain the S's IQ (preferably, Wechsler), administer a battery of achievement tests (mathematics and language), and if intelligence is normal but reading achievement falls a year or more below his current grade, prescribe supplementary reading instruction. A neurologist's attention is merited if psychometric testing evidences MR or if signs of neurologic disease are present. (2 refs.) - *B. Berman.*

74 **HEITZMAN, MARTIN; & JOHNSTON, GERALD S.** Radioactive bromide in the diagnosis of central nervous disease. *Diseases of the Nervous System,* 31(7):483-486, 1970.

Oral administration of sodium bromide-82 to 24 patients (6 Ss and 18 controls) with central nervous system (CNS) disorders confirmed the specificity of bromide in diagnosing tuberculous meningitis and active neurosyphilis. Blood serum/cerebrospinal fluid (CSF) ratios were ascertained for all patients through radioactive assay 24 hours after collecting serum and CSF. Bromide partition was normal in the 18 controls, who presented such CNS pathologies as head injury, multiple sclerosis, organic brain syndromes, pituitary adenoma, chorioretinitis, and epilepsy; the 6 Ss were studied to determine the presence of neurosyphilis or neurotuberculosis. In patients with signs of meningoencephalitis, it is frequently necessary to differentiate among various viral, bacterial, spirochetal, fungal, and other causations. Bromide partition, relatively simple to perform, is frequently helpful in diagnosing the presence or absence of the 2 infectious diseases—tuberculous meningitis and neurosyphilis—in treating CNS disease. The former, which is rare in the U.S., frequently enters into a differential diagnosis. Case histories for the 6 Ss are presented. (8 refs.) - *B. Berman.*

Walter Reed General Hospital
Washington, D. C. 20012

75 **SPENCER, D. A.** Assessment of mentally handicapped children. *Lancet,* 1(7646):574, 1970. (Letter)

MR children are frequently referred to hospitals with little or no prior investigation. More effective therapy would be possible if better communication and organization were effected between maternity hospitals, pediatricians, family doctors, health authorities, and specialists dealing with problems of the MR. Only 28 of 50 recent cases of MR children who were admitted to 2 hospitals for the MR had been examined previously by pediatricians. Apparently, the more severely handicapped Ss are more likely to have had previous assessment than are those who are ambulatory and have apparently uncomplicated MR. In relatively few cases had screening for inborn errors of metabolism been performed. Investigation of these patients at hospitals is often uneconomical and time-consuming; consequently, the institution of appropriate therapy is delayed further. The

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establishment of diagnostic centers and assessment panels would aid in the correction of the present unsatisfactory situation. (1 ref.) - *M. S. Fish.*

Stansfield View Hospital
Todmorden, Lancashire, England

76 **STOWENS, DANIEL; & SAMMON, JOHN A.** Dermatoglyphics and leukaemia. *Lancet,* 1(7651):846, 1970. (Letter)

The analysis of over 4,000 pairs of finger and palm prints of Ss with diabetes, leukemia, cancer (all types), Down's syndrome, non-specific MR, and schizophrenia, and of normal controls provided encouraging results for all classes of patients studied. The method used yields 25 variables for each hand. The highly significant data which were obtained from examination of prints of only the right hands of white females with leukemia suggest that analysis of the prints of both hands would afford even better results. (4 refs.) - *M. S. Fish.*

St. Luke's Memorial Hospital Center
Utica, New York

77 **HELLMAN, LOUIS M.; DUFFUS, GILLIAN M.; DONALD, IAN; & SUNDEN, BERTIL.** Safety of diagnostic ultrasound in obstetrics. *Lancet,* 1(7657):1133-1134, 1970.

Ultrasound examinations of 1,114 normal pregnant women did not increase the risk of fetal abnormality. Pulsed ultrasound was used on most Ss (a few had continuous ultrasound) and information, gathered from 3 centers (New York, Glasgow, and Lund) to confirm the safety of ultrasound, was placed on code study sheets for transfer to IBM cards for analysis. Lowest abnormality frequency (2/146, 1.4%) occurred in a group first exposed to ultrasound before 10 weeks' gestation. Although the findings were not conclusive since the Ss were selected to conform with the purposes of specific ultrasonic studies, the abnormalities in this group were no more common than those in the general population. (8 refs.) - *B. Berman.*

State University of New York
Brooklyn, New York 11203

78 When the fetus isn't listening. *medical World News,* 11(15):28-29, 1970.

Medical skills and audioengineering methods are used by a team of Swedish specialists to identify, up to 2 months prior to birth, fetuses who will be born deaf or with a hearing defect. Fetal hearing is tested with a vibrator which is placed on the mother's abdomen and produces a sound in the medium audible range. A phonocardiograph sensor is used to pick up fetal "startle" responses and increased heart beat rate. Of 30 mothers at-risk who have been tested, one severely handicapped infant and one infant who responded "not quite normally" have been identified. (No refs.) - *J. K. Wyatt.*

79 **JOSIMOVICH, J. B.; KOSOR, B.; BOCCELLA, L.; MINTZ, D. H.; & HUTCHINSON, D. L.** Placental lactogen in maternal serum as an index of fetal health. *Obstetrics and Gynecology,* 36(2):244-250, 1970.

A linear increase in human placental lactogen concentration in serum as pregnancy progressed was found from radioimmunoassays of sera from 89 women with complicated pregnancies and 151 women with normal pregnancies. Serum levels varied more during the last 4 weeks than they did during earlier pregnancy periods. Fetal outcome did not correlate with randomly obtained placental lactogen levels in the serum of Ss with diabetes mellitus, sickle cell anemia, toxemias of different etiologies, erythroblastosis, and small-for-date babies. (23 refs.) - *J. K. Wyatt.*

University of Pittsburgh School of Medicine
Pittsburgh, Pennsylvania 15213

80 **SHARMA, SANTOSH D.; & TRUSSELL, RICHARD R.** The value of amniotic fluid examination in the assessment of fetal maturity. *Journal of Obstetrics and Gynaecology of the British Commonwealth,* 77(3):215-220, 1970.

Amniotic fluid examination was a valuable technique for distinguishing between small-for-dates and immature infants and for assessing fetal maturity in cases where induction of labor or elective cesarean section was planned. There were

5 groups of patients in the sample: 135 from whom single specimens were taken at varying times from the twenty-ninth to the forty-third week of pregnancy; 23 from whom serial specimens were obtained; 19 with a twin pregnancy from whom one sample was obtained from each amniotic sac; 114 from whom single samples were obtained during the first stage of labor; and 127 who were doubtful regarding the duration of pregnancy from whom single specimens were taken during the third trimester of pregnancy. Amniotic fluid was stained with Nile blue sulfate and the percentage of orange-staining cells, the presence of vernix caseosa, and the presence of free lipid were used to determine fetal maturity. Maternal age, parity, and pregnancy complications were not related to differences in the orange-staining cell count. Duration of pregnancy was the sole variable which consistently influenced the count of orange-staining cells. (8 refs.) - *J. K. Wyatt.*

Makerere University College Medical School
Kampala, Uganda

81 **SINGER, WILLIAM; *DESJARDINS, PAUL; & FRIESEN, HENRY G.** Human placental lactogen: An index of placental function. *Obstetrics and Gynecology*, 36(2):222-232, 1970.

Serial human placental lactogen (HPL) determinations may be of prognostic value in pregnancies jeopardized by placental failure, especially during early gestation. Radioimmunoassay was used to determine HPL in 285 normal and 70 abnormal pregnancies. There was a progressive increase in HPL throughout pregnancy and labor. About half the patients with diabetes mellitus, pre-eclamptic toxemia, Rh isoimmunization, and twins had high HPL levels. Five patients with threatened abortion whose pregnancies terminated unsuccessfully had low HPL levels, and 3 whose pregnancies continued normally had normal levels. Normal levels were present in 6 of 8 patients with fetal death occurring later in pregnancy. Although 4 of 6 patients with jaundice and/or pruritus had high levels, no correlation was found between clinical severity of those conditions and elevated HPL levels. (13 refs.) - *J. K. Wyatt.*

*Royal Victoria Hospital
Montreal, Quebec, Canada

82 **HALPERN, ANDREW S.** Some issues concerning the differential diagnosis of mental retardation and emotional disturbance. *American Journal of Mental Deficiency*, 74(6):796-800, 1970.

Emotional disturbance frequently accompanies MR, making a differential diagnosis imperative if proper therapy is to be administered. However, the definitions of these entities presented in the American Association on Mental Deficiency's *Manual on Terminology and Classification* are too vague with regard to causality to permit making the distinction between the two, to distinguish "primary" from "secondary" MR, and to tell whether lowered intelligence and impaired adaptive behavior are concomitants or have a cause-and-effect relationship. In addition to treatment implications, a differential diagnosis has potential for ultimate prevention of both MR and emotional disturbance. (7 refs.) - *B. Berman.*

University of Oregon
Eugene, Oregon 97403

83 **MARCUS, MARILYN MASAMED.** The evoked cortical response: A technique for assessing development. *California Mental Health Research Digest*, 8(2):59-72, 1970.

A basic force separating the nonretarded from the MR must be the capacity of the central nervous system (CNS) to process incoming sensory information, to develop perceptual correlates, and to store environmental experience chemically. The cortical evoked response (CER), a phenomenon whereby the electrical response of certain cortical cells to specific sensory stimulation is isolable, appears to be a means of evaluating the S's organic potential for growth. When the configuration of responses to a specific stimulus (in this study, visual) is measured at given points along the maturational continuum, a stimulus-time-response index provides a framework within which to estimate relative degrees of impairment. The CER is a particularly well suited procedure since it makes minimum demands for cooperation from Ss, whether infant, MR, or physically handicapped. MR Ss, when compared to normals, show a clear delay of peak latency. The only group of children showing little or no evidence of pattern processing after 1 year of age is those with Down's syndrome. Detecting CNS malfunctioning at the

earliest possible age is desirable since early ameliorating or compensatory techniques may be used to enhance the potential that exists. The CER is also a useful technique for monitoring potential changes brought about by therapy. Three Down's syndrome Ss showed response patterns after being treated with 5-hydroxytryptophan. (23 refs.) - *C. L. Pranitch.*

Sonoma State Hospital
Eldridge, California 95432

MEDICAL ASPECTS – Prevention and Etiology (General)

84 **KIRMAN, BRIAN.** Genetic counseling for parents of mentally handicapped children. *Parents Voice,* 21(1):12-14, 1971.

Increased demand for genetic counseling and changing public attitudes toward family size, birth control, and abortion make more research into all aspects of this field imperative. Although much knowledge is now available, a great deal is still unknown regarding hereditary and disease-caused MR. Further, parents expect precise risk figures and understanding advice, particularly when long investigations are required during pregnancy. Earlier diagnosis is now possible in many cases through amniotic puncture and special tests. These factors underscore the necessity of expert genetic counseling facilities and increased research in the field. (2-item-bibliog.) - *S. Glinsky.*

Queen Mary's Hospital for Children
Carshalton, Surrey, England

85 **REED, SHELDON C.; & REED, ELIZABETH W.** Who are the parents of the retarded children? *Focus on Exceptional Children,* 1(8):5-7, 1970.

All couples—contrary to a persisting myth—do not have the same chance of producing retarded children. Study of 80,000 white persons, members of 289 kinships which started with a retardate index case, showed a 40 times greater risk of a retarded offspring if both parents were retarded, than if normal. In a sample of 1,450 unselected retardates, 700 (48.3%) had one or both parents retarded. Preventing reproduction among retardates will reduce retardation by one-third to one-half in the next generation. (3 refs.) - *B. Berman*

University of Minnesota
Minneapolis, Minnesota 55455

86 **BUCK, CAROL.** Examples of current studies of reproductive casualty. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 737-744.

The Ontario Perinatal Mortality Study investigated reproductive casualties in relation to a broad spectrum of social and biological variables; data were collected from prenatal, natal, and postnatal information obtained for every birth in 10 hospitals. Data on reproductive performance related to the infertile woman, effects of age and parity, influence of social class, maternal height, employment in pregnancy, the unmarried mother, and prematurity. An extension of this study examined the effects of certain prenatal or perinatal complications on a child's psychological development. This prospective study, carried out over 8 years, used selected random samples from 4 categories: complications only of pregnancy, complications only of labor, heavy anesthesia or sedation at birth but no complications, and none of these problems. None of the complication groups revealed an unusual MR incidence and, with one exception (those with maternal pre-eclamptic pregnancy toxemia), could not be distinguished from controls. (6 refs.) - *B. Berman.*

87 **HON, EDWARD H. G.** Direct monitoring of the fetal heart. *Hospital Practice*, 5(9):91-97, 1970.

High-risk pregnancies, particularly those associated with fetal distress, can now be monitored by direct, continuous recording of fetal heart rate. Data on fetal heart rate presently obtainable by auscultation provide clues for only the most extreme instances of fetal distress, are usually limited to periods between contractions, and can be distorted by human error. The procedure described, which provides for direct physical connection, utilized a pair of electrodes which are crimped to the fetus and a pressure transducer inserted into the lower portion of the uterus to measure timing and intensity of uterine contractions. Signals pass to appropriate amplifying and displaying devices. Considerable useful information can be extrapolated from the basic data of heart rate and uterine contractions, and experience with the use of the equipment can provide indications as to the nature and degree of specific stresses which may indicate a change in the management of the pregnancy and delivery. (No refs.) - *M. S. Fish.*

University of Southern California
School of Medicine
Los Angeles, California 90033

88 **EDWARDS, J. H.** Uses of amniocentesis. *Lancet*, 1(7647):608-609, 1970.

Amniocentesis is recommended in various kinds of conception and is most useful with fetuses fathered by hemophiliacs or by men with other X-linked disorders. It provides the possibility of selective abortion in translocation carriers, particularly where familial history shows defective fetal survival. The procedure should not be used for minor risks or frivolous purposes. It should be used within the following framework: it is potentially hazardous to the fetus; all parties must understand what is likely to happen; amniotic fluid must be sent only to competent laboratories; and it is ethical only if complete documentation is sent to a central registration board. Within 5 years, the procedure should make possible exact fetal diagnosis in disorders with visible tissue-culture changes, such as the mucopolysaccharidoses and the fibrolytic diseases. (3 refs.) - *B. Berman.*

Maternity Hospital
Birmingham 15, England

89 Birth defects rate high—How much was LSD to blame? *Medical World News*, 11(21):4-5, 1970.

The conclusion of an investigation of 112 women in a hippie community who had used LSD either before or during pregnancy suggests that LSD is a strong mutagenic suspect. Six Ss were also known heroin addicts, and 25% had used heroin in addition to LSD. Of 127 pregnancies over a 2-year period, there were 12 spontaneous abortions and 53 therapeutic abortions. Six of 62 live neonates and 4 of 14 induced abortuses had congenital abnormalities. The abnormal newborns included: 3 cases of myelomeningocele and hydrocephalus; 1 case of congenital heart disease; 1 case of hydrocephalus only; and 1 case of hyaline membrane disease, bilateral amputation of the feet, bilateral symmetrical hemangiomas, and abnormal hands. Infectious disease was common among these women, and nutrition during the first trimester was marginal. (No refs.) - *J. K. Wyatt.*

Johns Hopkins Hospital
Baltimore, Maryland 21205

90 **MURPHY, E. A.** The Ensu scoring system in genetic counselling. *Annals of Human Genetics*, 34(1):73-78, 1970.

A new scoring system systematically computes the posterior probability that a woman is the carrier of an X-linked recessive disorder. Data provided by a woman and her male descendents are condensed into Equivalent Normal Son Units (Ensu). The method involves the computation of the prior probabilities of the competing hypotheses about the genotype of the consultant on the sole basis of anterior data and their modification based on conditional probabilities of posterior data. The method can be extended beyond recessive disorders to situations and cases where the carrier state can be identified with greater or less certainty and to include available probabilistic information such as linkage data. Tables and a graph which permit 3-digit accuracy are provided. (1 ref.) - *J. K. Wyatt.*

Johns Hopkins Hospital
Baltimore, Maryland 21205

91 Birth: Survival and the fittest. *Medical World News*, 11(13):17, 1970.

Medical care before, during, and immediately after birth can give the child an opportunity for optimal

development. When a program which included identification of high-risk babies and immediate intensive attention to them, cleared airways, maintenance of body temperatures, monitoring of pH, tests of blood sugar, and attention to sepsis was applied in one hospital, mortality rate which had ranged from 27 to 34/1,000 annually dropped to 21/1,000. Among the factors which can affect infant development are position of the mother during labor, the avoidance of repeated elective cesarean section, the use of comprehensive checks for gestational maturity, attention to infections, early prediction of respiratory distress syndrome, and identification of chromosome or enzyme-related anomalies. (No refs.) - *J. K. Wyatt.*

92 Fetal famine may kill more than we think. *Medical World News*, 11(13):15-16, 1970.

Retrospective data from autopsies of 1,002 infants extend postpartum information into intrauterine life and suggest that maternal malnutrition contributes to a high percentage of mortality among the urban poor. Babies (449) who had congenital or chromosomal anomalies, chronic infection, or a hemolytic process, or mothers who had hypertension, toxemia, diabetes mellitus, infectious cardiac disease, exposure to teratogenic drugs, or placental anomalies were disregarded as well as an additional 84 for whom parent income data were not available. Of the 469 babies (190 white, 179 black, 4 oriental, 96 Puerto Rican) included, 134 were stillborn and 335 died within 3 days after birth. Eighty-three of these met a poverty criterion of 75 cents or less/day/person for food. Among these children, incidence of stillbirth was greater, and birth weight and the weight of almost every vital organ was stunted. Although the number of cells was near normal among the poverty group, cytoplasm was reduced in the parenchymal cells. Among the premature births in the poverty group, subcutaneous fat in the abdominal wall was about half as thick as that in the remainder of the group. Their adipose cells covered a reduced area. Undernutrition may be an underestimated factor in retarded fetal growth. Data on the mothers' dietary habits were not available. (No refs.) - *J. K. Wyatt.*

93 Why baby didn't thrive. *Medical World News*, 11(20):44, 1970.

Rumination as a cause of failure to thrive appears to be associated with a severely disturbed mother-infant relationship. Investigation of a boy (CA 6 mos) revealed no physical reason for persistent and life-threatening vomiting. The mother had been involuntarily hospitalized for schizophrenia on 2 occasions. Her treatment of the child was forced and mechanical, and he was tense in her presence. When nurses used oral feeding methods and provided loving care, the child began to thrive. The mother then learned to care for the child in the hospital while nurses provided emotional support. Lack of maternal stimulation had evidently led to the perfection of rumination as a mechanism of self-satisfaction and gratification. (No refs.) - *J. K. Wyatt.*

94 **SCHOU, MOGENS; & AMDISEN, AMDI.** Lithium in pregnancy. *Lancet*, 1(7661):1391, 1970. (Letter)

Of 40 children whose mothers received lithium treatment during the first trimester or throughout pregnancy, there were 2 cases of malformation. One child had club-feet, spina bifida, and sacral meningocele; the other had defective development of the auricle and meatal atresia. Caution in the use of lithium by pregnant women seems advisable, although the role of lithium in these 2 cases of malformation is not clear. (4 refs.) - *J. K. Wyatt.*

Aarhus University Psychiatric Unit
8240 Risskov, Denmark

95 **FRIES, HANS.** Lithium in pregnancy, *Lancet*, 1(7658):1233, 1970. (Letter)

Lithium therapy was used prior to and during the pregnancy of a woman (CA 26 yrs) to treat recurrent endogenous depression. At birth, the child was normal and well-developed. Lithium seemed to cross the placental barrier completely, and concentrations in the mother's serum and umbilical blood were 0.9 meg/liter at delivery. One week after delivery, lithium levels in the mother's milk and the child's serum were 0.3 meg/liter. (4 refs.) - *J. K. Wyatt.*

Academic Hospital
Uppsala, Sweden

96 **FREIRE-MAIA, NEWTON; BRAGA, JOAO CARLOS B.; ABDALA, HAYDEE; & TARTUCE, NILZA.** Mental retardation:

Risks of recurrence. *Lancet*, 1(7661):1390, 1970. (Letter)

The inapplicability of an average recurrence risk for all situations in which MR may be a factor was demonstrated in a study of 75 sibships in which an extremely variable recurrence rate ranged from 0% to 6% (mean 2%). Recurrence rate for Down's syndrome and cases due to exogenous factors was 0%. There was a 2% recurrence rate for the total group. When cases of Down's syndrome and exogenous factors were removed, recurrence rate ranged from 5.5% (for those over age 5) to 7% (for the total group). There may be a genetic component in some conditions, the etiology of which is undefined. Recurrence risks were similar for mild and severe retardation and higher when the etiology of the MR was not known. (1 ref.) - *J. K. Wyatt.*

Universidade Federal do Parana
Curitiba, Parana, Brazil

97 Danger of iodides in pregnancy. *Lancet*, 1(7659):1273-1274, 1970. (Editorial)

Drugs containing iodide should preferably be available only by a physician's prescription and should at least carry warnings of their potential dangers to pregnancy. When taken during pregnancy, these drugs are related to hypothyroidism with retarded bone development, MR, and cretinism in the newborn. (3 refs.) - *J. K. Wyatt.*

98 Hazards for pregnant nurses. *Lancet*, 1(7644):458-459, 1970. (Editorial)

A survey of the incidence of congenital defects in the offspring of 2,000 nurses who continued to work during pregnancy revealed that the largest number of congenital defects occurred among the offspring of nurses who had cared for infants with congenital defects. Frequency of congenital defects was 18.5% (14 out of 77) for nurses who worked with congenital defects in the hospital, 9.3% (126 out of 1,350) for nurses who cared for adults, and 8.4% (21 out of 250) for those who nursed healthy or premature babies. Babies with virus infections appear to be a hazard to pregnant women who come in contact with them. (1 ref.) - *J. K. Wyatt.*

99 **BENTREM, GEORGE C.; PERKINS, PAUL; & WAXMAN, BENNY.** Newer methods of evaluating fetal maturity. *American Journal of Obstetrics and Gynecology*, 106(6):917-919, 1970.

When creatinine concentration is correlated with Nile blue staining of the amniotic fluid, accuracy in determining fetal maturity may be improved by more than a single parameter. Single random samples of amniotic fluid from 43 patients were analyzed by spectrophotometry, Nile blue stain, creatinine concentration, color, and turbidity, and the results were correlated on the basis of ability to determine fetal maturity. The creatinine level was the most reliable method; the only variable which consistently influenced it was length of pregnancy. (9 refs.) - *J. K. Wyatt.*

George Washington University School of Medicine
Washington, D.C. 20001

100 **DROEGEMUELLER, WILLIAM; & TAYLOR, E. STEWART.** Is therapeutic abortion preventable? *Obstetrics and Gynecology*, 35(5):758-759, 1970.

Contraceptive measures are preferable to abortion; the former offer lower morbidity, less expense, and less psychological trauma. Most abortions for medical or fetal reasons could have been prevented by proper use of a contraceptive procedure; this is only slightly less true for patients with chronic mental illness. In a 2-year experience in Colorado, 15 abortions performed for fetal reasons (out of a total of 21 for such indications) could have been prevented by adequate contraceptive measures; the same is true for 5 out of 6 abortions performed for medical reasons. In many cases, physicians (including general practitioners, internists, and surgeons) have not practiced good preventive medicine since they did not recommend the use of appropriate contraceptives (and thus avoid subsequent abortions). Three representative case histories are presented to illustrate preventable (by contraceptive means) abortions for fetal, medical, and chronic mental indications. (4 refs.) - *E. Kravitz.*

University of Colorado Medical Center
Denver, Colorado 80220

101 de la RAMA, FERNANDO E.; & *MERKATZ, IRWIN R. Evaluation of fetal scalp pH with a proposed new clinical assessment of the neonate. *American Journal of Obstetrics and Gynecology*, 107(1):93-99, 1970.

Serial pH determinations on fetal scalp blood were used to monitor labor in 208 high-risk patients. These values were compared with umbilical artery pH, 1- and 5-minute Apgar scores, and the "resuscitation index." The latter is based upon the extent of resuscitative measures performed in the delivery room and was found to correlate best with pH values. In those infants with scalp pH <7.20, 53% eventually required aggressive resuscitation. Only 8% of infants with pH>7.20 required resuscitation, and these had intervening difficult operative deliveries. pH determinations can be valuable in the decision on whether or not to intervene in labor. (9 refs.) - *E. L. Rowan.*

*525 East 68 Street
New York, New York 10021

102 MORTON, J. H. Experiences with a maternity and infant care (MIC) project. *American Journal of Obstetrics and Gynecology*, 107(3):362-368, 1970.

One of the 53 federally funded maternity and infant care projects serves low income areas in Los Angeles, California. Its goals are a reduction in the complications of childbirth, provision of health care to mothers and infants, and family planning. The availability of funds has fostered the development of multidisciplinary teams with adequate personnel to serve more patients more efficiently. Project patients have shown no obstetrics deaths and lower rates of infant deaths, stillbirths, and prematurity. (7 refs.) - *E. L. Rowan.*

County of Los Angeles Health Department
Los Angeles, California

103 AUBRY, RICHARD H.; & NESBITT, ROBERT E., JR. High-risk obstetrics: III. Cytohormonal evaluations and their practical utility in managing high-risk patients. *American Journal of Obstetrics and Gynecology*, 107(1):48-64, 1970.

A group of 133 high-risk obstetrics patients (chronic hypertension, diabetes, or multiple premature births) was monitored throughout pregnancy with serial determinations of estriol, pregnanediol, chorionic gonadotrophin, and vaginal hormonocytology (karyopyknotic index). The most sensitive reflector of fetal status was estriol excretion with abnormally low values associated with fetal distress. The relatively high percentage of women with abnormal estriol but normal outcome (30%) suggests that the measure has little clinical utility, especially since high-risk patients are usually induced before term anyway. Persistently normal estriol, however, may permit delay of induction and avoid the complications of prematurity. (58 refs.) - *E. L. Rowan.*

State University of New York
Upstate Medical Center
Syracuse, New York 13210

104 O'LEARY, JAMES A.; & FELDMAN, MARTHA. Amniotic fluid osmolality in the determination of fetal age and welfare. *Obstetrics and Gynecology*, 36(4):525-527, 1970.

Amniotic fluid osmolality generally decreases with increasing gestational age, but the wide range of normal values makes it useless in the assessment of fetal age or welfare. Samples from 255 pregnant women including 138 with abnormal gestations failed to demonstrate significant trends. (4 refs.) - *E. L. Rowan.*

University of Miami School of Medicine
Miami, Florida 33152

105 PECKHAM, CHARLES H. Uterine bleeding during pregnancy. *Obstetrics and Gynecology*, 35(6):937-941, 1970.

Uterine bleeding was reported in 1,200 (19%) of 6,223 pregnancies terminated in a single facility. Only 259 of these terminated within 6 days of the bleeding, and 85% of the remainder carried the pregnancy for more than 2 months afterward. The bleeding group had a much higher incidence of abortions (97), stillbirths (38), and neonatal deaths (26); this risk was increased by multiple bleeding episodes. Severe congenital anomalies occurred with equal frequency among bleeders (33) and nonbleeders, but nonsevere anomalies (generally eyes and extremities) were more common among bleeders (70), especially when the bleeding occurred prior to the twelfth week of pregnancy. (6 refs.) - *E. L. Rowan.*

3867 Howe Street
Oakland, California 94611

MEDICAL ASPECTS — Etiologic Groupings

Infections, intoxication, and hemolytic disorders

106 ELLIS, M. IVONNA; COXON, ALAN; & NOBLE, CYRIL. Intrauterine transfusion of twins. *British Medical Journal*, 1(5696):609, 1970

A first reported case of intrauterine transfusion in multiple pregnancy in which both twins survived illustrates the importance of accurate fetal palpation for successful puncture of the fetal peritoneal cavity. The mother, referred for transfusion because of a rising bilirubin level in the liquor amnii, had easy normal vertex deliveries following 3 transfusions and spontaneous premature membrane rupture. Success depended also on use of successive transfusions and of intra-amniotic dye to identify the sacs of each twin. (4 refs.) - *B. Berman.*

Newcastle Regional Transfusion Service
Newcastle, England

107 Primary amoebic meningoencephalitis. *British Medical Journal*, 1(5696):581, 1970.

A review of the epidemiology and pathology of primary amebic meningoencephalitis revealed that its victims are chiefly children and young adults who had been swimming in inland water during hot months or in heated pools or springs. Olfactory brain-lobe infection with nasal mucosa inflammation pointed to the cribiform plate as the entry portal. All victims but one, in whom *Hartmanella* was cultured from the cerebrospinal fluid, died after a fulminating attack that resisted conventional chemotherapy. When response to such therapy is unsatisfactory and deterioration occurs, primary amebic meningoencephalitis should be considered. *Naegleria*—the organism present in the fatal cases—is the only free-living ameba whose pathogenicity in man is unquestioned; amphotericin B is the preferred therapy. (15 refs.) - *B. Berman.*

108 CLAMAN, HENRY N.; SUVATTE, VINAI; GITHENS, JOHN H.; & HATHAWAY, WILLIAM E. Histiocytic reaction in dysgammaglobulinemia and congenital rubella. *Pediatrics*, 46(1):89-96, 1970.

The case of a white girl with congenital rubella presenting also severe dysgammaglobulinemia and hystiocytic reaction (nodal architecture replaced by hystiocytes) suggests the latter may be a tissue response to persistent infection (viral) that results in a changed immune mechanism. The child's mother, at 8 weeks of pregnancy, developed a morbilliform rash and posterior neck adenopathy. Delivery was normal, but the child failed to thrive and developed hepatosplenomegaly, lymphadenopathy, glaucoma, and nerve deafness. At age 3, she was attending a school for the congenitally deaf; in most other areas, she is relatively normal, except in language ability. All patients with hystiocytic reactions should be carefully evaluated for immunologic reactivity and possible viral infection. (23 refs.) - *B. Berman.*

University of Colorado Medical School
Denver, Colorado 80220

109 ODELL, GERARD B. The distribution and toxicity of bilirubin. *Pediatrics*, 46(1):16-24, 1970.

Bilirubin, because of its lipid solubility and alteration of selective permeability, can be toxic to membrane systems engaged in active transport. By lowering sodium and urea reabsorption, it interferes with the normal hypertonicity of the papillae, with consequent inability to reabsorb water from the collecting ducts. Bilirubin's albumin-binding in extracellular fluids acts as a deterrent to its toxicity by decreasing its diffusibility. Conversely, central nervous system susceptibility to bilirubin toxicity is due to neural tissue's low albumin concentration in its interstitial fluid. Ionic strength can change albumin's capacity to carry bilirubin—a factor relating to the latter's *in vivo* toxicity. There is no method yet of measuring the actual concentration of free bilirubin; clinical procedures are poorly defined and depend on

extreme central nervous system damage. (15 refs.) - *B. Berman.*

Johns Hopkins University School of Medicine
Baltimore, Maryland 21205

110 **CHIN, JAMES.** Rubella vaccines. *Lancet,* 1(7643):417, 1970. (Letter)

The California State Health Department has recommended that all children be immunized against rubella in order to reduce the community-wide spread of the wild virus. Susceptible non-pregnant women are the second priority. The immunization of 13-year-old school girls does not provide immediate results and should not be a primary consideration as had been implied editorially. (2 refs.) - *E. L. Rowan.*

Bureau of Communicable Disease Control
Berkeley, California

111 **SILK, B. R.; & ROOME, A. P. C. H.** Herpes encephalitis treated with intravenous idoxuridine. *Lancet,* 1(7643):411-412, 1970. (Letter)

A 6-year-old boy who presented with coma, unilateral pyramidal signs, and a deteriorating clinical condition was shown by immunofluorescent microscopy of a brain biopsy specimen to have herpes encephalitis. After a total dose of 550 mg/kg of idoxuridine, he showed some clinical improvement although he was left hemiplegic, hemianopic, aphasic, MR, and incontinent. Serial liver function tests showed some hepatotoxicity; there was also alopecia and anemia, but these side effects were not severe. Use of idoxuridine is indicated because of the high morbidity and mortality of untreated herpes encephalitis. (5 refs.) - *E. L. Rowan.*

Royal Hospital for Sick Children
Bristol, England

112 **WHAUN, JUNE M.; & OSKI, FRANK A.** Relation of red blood cell glutathione peroxidase to neonatal jaundice. *Journal of Pediatrics,* 76(4):555-560, 1970.

Red-blood-cell glutathione-peroxidase activity and evidence of hemolysis were compared in 194 infants who showed no evidence of blood group sensitization, glucose-6-phosphate dehydrogenase (G-6-PD) deficiency, or sepsis. All infants had lower enzyme levels than did healthy adults who, in turn, had lower levels than did patients with reticulocytosis. There was no significant correlation between enzyme level and bilirubin level in either term or premature infants; however, those infants with the highest bilirubin levels had lowered glutathione peroxidase activity. A deficiency of this enzyme, such as G-6-PD deficiency, may predispose infants to neonatal jaundice in association with other, as yet unknown, factors. (6 refs.) - *E. L. Rowan.*

University of Pennsylvania School of Medicine
Philadelphia, Pennsylvania 19104

113 **OVERALL, JAMES C., JR.** Neonatal bacterial meningitis: Analysis of predisposing factors and outcome compared with matched control subjects. *Journal of Pediatrics,* 76(4):499-511, 1970.

Among 54,535 live births in the Collaborative Perinatal Research Study were 25 infants with neonatal meningitis. Gram negative enteric bacteria were the most common (13 cases) etiologic agents. Ten of the mothers had peripartum infections, and complications of labor and delivery and chorioamnionitis were also common. Eight of the infants had low birth weight, and 7 of these died. The overall mortality rate was 60%. Among the 10 survivors, 5 have sequelae, and in 2 of these, the mental and motor retardation appeared to be permanent. Coma, an abnormal Moro reflex, and opisthotonus were associated with mortality, but convulsions were not. The nonspecific presenting symptoms of neonatal meningitis and the delayed immune responses of the infant combine to make this disease most virulent, and further investigation is mandatory. (58 refs.) - *E. L. Rowan.*

University of Rochester School of Medicine
Rochester, New York 14620

114 **TORPHY, DANIEL E.; RAY, C. GEORGE; McALISTER, ROBERT; & DU, JOSEPH N. H.** Herpes simplex virus infection in infants: A spectrum of disease.

Journal of Pediatrics, 76(3):405-408, 1970.

Five children who acquired herpes simplex infection during infancy showed a wide range of illness and sequelae. Among type 2 (genital) herpes infections, there were 2 cases symptomatic at birth; one was unresponsive and died, and the other later showed microcephaly, seizures, and severe psychomotor retardation. The other 2 cases of type 2 infection were quite ill during the first week of life but had no apparent sequelae. In the fifth child, a type I (oral) infection acquired at 8 weeks was manifest as seizures, bleeding, and marked electrolyte and fluid imbalance, but the child had no sequelae. The mortality and morbidity in the natural course of disease with supportive treatment alone should be considered before antiviral drugs are considered. (11 refs). - *E. L. Rowan.*

4800 Sand Point Way N.E.
Seattle, Washington 98105

115 **MILLER, DENIS R.; HANSHAW, JAMES B.; O'LEARY, DENNIS S.; & HNILICKA, JANA V.** Fatal disseminated herpes simplex virus infection and hemorrhage in the neonate: Coagulation studies in a case and a review. *Journal of Pediatrics*, 76(3):409-415, 1970.

Disseminated herpes simplex virus infection was discovered in a 10-day-old infant who died of profound hemorrhage. Coagulation studies showed decreased platelets, prolonged prothrombin time, partial thromboplastin time and thrombin time, absent fibrinogen and fibrinolysins, and increased fibrin degradation products. This is quite suggestive of disseminated intravascular coagulation; however, hepatocellular destruction and septicemia cannot be ruled out as associated causes. A review of 54 previously published cases of fatal disseminated herpes simplex infection indicated that significant hemorrhage occurred in 22 although no coagulation studies were done. (51 refs.) - *E. L. Rowan.*

University of Rochester School of Medicine
Rochester, New York 14620

116 **CHARNOCK, EDWARD L.; & CRAMBLETT, HENRY G.** 5-Iodo-2'-deoxyuridine in neonatal herpesvirus hominis encephalitis. *Journal of Pediatrics*, 76(3):459-463, 1970.

A 19-day-old infant with signs of severe central nervous system damage was subjected to brain biopsy, and herpes simplex virus was recovered from this tissue. Intravenous 5-iodo-2'-deoxyuridine (IDU) in a total dose of 410 mg/kg was administered, but thrombocytopenia occurred, necessitating the cessation of therapy. The infant did demonstrate some clinical improvement; however, EEG and ventriculographic studies indicated severe brain damage. Among the 7 reported cases of herpes encephalitis treated with IDU, there have been 2 total recoveries and some improvement in others so that continued evaluation of this drug is justified. (13 refs.) - *E. L. Rowan.*

Children's Hospital Research Foundation
Columbus, Ohio 43205

117 **SEVER, JOHN L.** Viral teratogens: A status report. *Hospital Practice*, 5(4):75-78, 82-83, 1970.

Viral infection *in utero* is more common than formerly thought, particularly among the lower socioeconomic strata, and some abnormalities once considered hereditary may be congenital malformations. Of the dozen viruses that reach the human fetus in its enclosure, only 3 (rubella, cytomegalovirus, and herpesvirus hominis) are teratogenic. Rubella—the most serious— can cause severe damage in the first and second trimesters; heart lesions, cataracts, deafness, microcephaly, and MR are the major pathological problems. About 80% of children with congenital rubella has elevated IgM levels. The teratogenic mechanism apparently depends on a direct virus-cell interaction persisting through gestation. Cytomegalovirus may produce microcephaly, hydrocephaly, microphthalmia, encephalitis, blindness, seizures, and other pathologies; many children are left with MR. As with rubella, the virus may persist for years despite neutralizing antibodies. Herpesvirus infections result from exposure during or shortly after birth, but some evidence shows transplacental infection. Of its 2 types, type II—the genital variety—is more likely to infect the neonate. Only in the broad sense of causing microcephaly, a fourth teratogen, the

protozoan *Toxoplasma gondii*, needs mention. Teratogens and supplemental environmental factors are amenable to vaccinations, improved maternal nutrition, and other interventions. (8 item bibliog.) - *B. Berman.*

National Institute of Neurological
Diseases and Blindness
Bethesda, Maryland 20014

118 **KRUGMAN, SAUL.** Etiology of viral hepatitis. *Hospital Practice*, 5(3):45-49, 1970.

Discovery and confirmation of the relationship of the Australian (Au) antigen to serum hepatitis is a "break-through," but complete understanding of the etiology of viral hepatitis has not yet been attained. Two hepatitis forms—infectious (epidemic jaundice, and virus A hepatitis) and serum (homologous serum jaundice, and virus B hepatitis) have been confirmed from observations of many patients with 2 attacks of hepatitis, suggesting the possibility of at least 2 immunologically distinct viral types. Au antigen can be readily identified by immunodiffusion and complement fixation; since the antigen is identical to Gocke's hepatitis antigen and Prince's serum hepatitis antigen, the name "hepatitis-associated antigen" (HAA) has been suggested. Examination of serial serum specimens from 41 patients with infectious hepatitis and 34 patients with serum hepatitis revealed the presence of the Au antigen in 33 of the latter group; it was not detected in the sera of those with infectious hepatitis. Reports of the HAA occurrence in cases of infectious hepatitis reflect a misdiagnosis. HAA's persistence in blood is puzzling since it is likely to persist in Down's syndrome, leukemia, and lepromatous leprosy; it may represent a long-term carrier state connected with earlier hepatitis and immunologic impairment. Apparently, the antigen persists in some patients, but not in others. Its characterization, though not yet complete, suggests it is a virus. (5 refs.) - *B. Berman.*

New York University School of Medicine
New York, New York 10016

119 Hazards of exchange transfusions. *Medical World News*, 11(3):26H, 1970.

A review of the health and school records of 1,865 children who had jaundice (attributed to erythroblastosis fetalis, ABO incompatibility, or hyperbilirubinemia) showed that erythroblastosis severe enough to require exchange transfusion may cause permanent neurologic deficits, with detriments (small but consistent) to IQ, vision, and hearing. In another study of 306 matched pairs of children, those who had had exchange transfusions showed an average IQ of 109 (113 for controls), while those needing only small transfusions showed only a 1-point IQ difference from controls. Children of ABO-incompatible mothers presented deficits similar to those with Rh disease; children with neonatal hyperbilirubinemia showed no differences from controls. Universal use of the new Rh antibody would eliminate the entire Rh incompatibility problem. (No refs.) - *B. Berman.*

120 **McHENRY, MARTIN C.; DOHN, DONALD F.; TINGWALD, FRED R.; & GAVAN, THOMAS L.** Meningitis due to *Escherichia coli*: Report of a case in a young adult treated with gentamicin. *Journal of the American Medical Association*, 212(1):156-158, 1970.

The case of an 18-year-old man with refractory meningitis due to *Escherichia coli* associated with central nervous system trauma following temporal-bone fracture illustrates the effectiveness of gentamicin (a broad-spectrum aminoglycoside antibiotic) in treating purulent meningitis of gram-negative bacillary origin. Postoperatively, the S was given routine supportive measures and hypothermia. Temporary control of the infection was obtained with intramuscular gentamicin (initial antibacterial therapy utilized ampicillin), which produced detectable concentrations in the cerebrospinal fluid (CSF). Intrathecal plus intramuscular gentamicin produced permanent cure; intrathecal therapy was administered and monitored conveniently by the subcutaneous CSF reservoir of Ommaya. (17 refs.) - *B. Berman.*

Cleveland Clinic Foundation
Cleveland, Ohio 44106

121 Echovirus as a cause of meningism. *Journal of the American Medical Association*, 212(7):1206, 1970. (Editorial)

Since epidemiological studies of meningitis are not sufficiently diagnostic of the variable clinical signs occurring in individual cases, isolation of echovirus

directly from the cerebrospinal fluid (CSF) is preferred. Until recently, echoviruses have been isolated almost entirely from monkey kidney cells. New findings now suggest that culture of some human cells may permit CSF isolation. A normal CSF cell count in cases with signs of meningeal irritation usually suggests a diagnosis of "meningism" or "meningismus." However, these symptoms may occur in the early stages of various acute infections, especially in children, and be true echovirus meningitis but mistakenly diagnosed as meningism. To avoid this error, patients' CSF must be cultured for echovirus (and other viruses), with human cells (such as diploid WI-38) in addition to monkey cells. (2 refs.) - *B. Berman.*

122 **HARDY, JANET B.; HARDY, PAUL H.; OPPENHEIMER, ELLA H.; RYAN, STEPHEN J., JR.; & SHEFF, ROBERT N.** Failure of penicillin in a newborn with congenital syphilis. *Journal of the American Medical Association*, 212(8):1345-1349, 1970.

A newborn with congenital syphilis, in whom massive doses of penicillin failed to eradicate the infection, is apparently the first reported case in which *Treponema pallidum* was recovered after early-stage penicillin therapy. Born to an unwed Negress, the infant showed unusual clinical features including a small head, distended abdomen, and a frog-like position assumed shortly after birth. Widespread infection involved the meninges, liver, pancreas, peritoneum, and long bones. From the second to the tenth day, he was given intravenous hydrocortisone sodium succinate. Penicillin treatment occurred twice: the first time, *in utero* (2.4 million units of benzathine penicillin G); penicillin G potassium was administered postnatally 5 times a day for 17 days. Survival of the treponemes (recovered from the aqueous fluid and ground eye tissue at autopsy at age 22 days) brings into question the adequacy of present treatment of congenital syphilis in neonates. (10 refs.) - *B. Berman.*

Johns Hopkins Hospital
Baltimore, Maryland 21205

123 **ROSDAHL, NILS; JENSEN, KLAUS; & RANEK, LEO.** Steroids and acute pyogenic meningitis. *British Medical Journal*, 2(5701):113, 1970.

Steroid treatment of 81 patients with pneumococcal meningitis suggests beneficial effects, corresponding to favorable results of early treatment of animal pneumococcal bacteremia with hydrocortisone. Although the difference in mortality from the control group was not statistically significant, early initiation of steroid therapy is recommended. (2 refs.) - *B. Berman.*

University of Copenhagen
Copenhagen, Denmark

124 **HILDERBRAND, D. C.; KOIRTYOHANN, S. R.; & PICKETT, E. E.** The sampling-boat technique for determination of lead in blood and urine by atomic absorption. *Biochemical Medicine*, 3(6):437-446, 1970.

The "sampling-boat" technique for lead analysis of blood and urine is useful to toxicologists and others concerned with human or animal lead levels. Rapid and precise, the method uses and increases the sensitivity of atomic absorption and requires only small volumes of urine or blood. The sample (up to 1 ml) is placed in a tantalum boat, which, after evaporation of the sample to dryness, is placed in the flame of an atomic-absorption instrument which quickly vaporizes the sample's lead content. As little as 0.5 ml can be used for each urine measurement, and 0.25 ml of normal blood would be enough to give 1 ml of supernatant liquid, which would permit duplicate runs of 0.5 ml volumes. If only high lead levels are wanted, even smaller blood quantities would suffice. Analysis of several samples to determine the method's precision gave an average relative standard deviation of ± 6.0%. Standard addition tests yielded a 97% average recovery. The technique should prove useful in lead analyses of many biological samples, without the need for preliminary concentration. (16 refs.) - *B. Berman.*

University of Missouri
Columbia, Missouri 65201

125 **WILLIAMS, D. N.; & GEDDES, A. M.** Meningococcal meningitis complicated by

pericarditis, panophthalmitis, and arthritis. *British Medical Journal*, 2(5701):93, 1970.

An 18-year-old West Indian girl (diagnosed with meningococcal meningitis complicated by pericarditis, panophthalmitis, and arthritis) is one of a small minority of cases of meningococcal disease that may produce any kind of symptom and causes diagnostic problems. Complaining of reduced vision and pain in the left eye, headache, and sore throat, she presented left periorbital edema and purulent discharge from the left eye, neck stiffness, papilledema, and a left sixth cranial-nerve palsy. On the eighth day after hospitalization, an EEG revealed pericarditis. Benzylpenicillin by intravenous infusion, atropine and cortisone-chloramphenicol drops into the left eye, and oral sulphadimidine produced gradual improvements, and when discharged, she was entirely without symptoms. The case is of interest in that the meningitis was associated with one relatively unusual complication (pericarditis with only 15 cases reported since the advent of the sulphonamides) and 2 rare manifestations (eye disease and arthritis). (10 refs.) - *B. Berman.*

East Birmingham Hospital
Birmingham 9, England

126 **WALKER, W.; & ELLIS, M. I.** Rh haemolytic disease: Intrauterine transfusion. *British Medical Journal*, 2(5703):223-227, 1970.

Although intrauterine transfusion in severe fetal hemolytic disease was first suggested in 1963, experience has been so varied that no reasoned evaluation of the technique is yet possible. Selection of patients for transfusion is based on bilirubin levels in the amniotic fluid. Many techniques have been advocated for correct catheter siting, and most workers have used group O Rh-negative blood collected within 48 hours of transfusion for best results and to avoid excess potassium in the plasma. Fetal age determines the volume and frequency of transfusion. Various dangers of transfusion include fetal trauma (segmented paralysis, peripheral-nerve injury, and even death), placental trauma, maternal and fetal infection, premature labor, and other maternal risks. Exchange transfusion in live-born infants with hemolytic disease is far superior to simple transfusion, but there are procedural difficulties and high risks. Criteria for transfusions are still uncertain and their results have been disappointing—only 35%-40% survival. (57 refs.) - *B. Berman.*

University of Newcastle upon Tyne
Newcastle upon Tyne, England

127 **THOMPSON, K. M.; & TOBIN, J. O'H.** Isolation of rubella virus from abortion material. *British Medical Journal*, 2(5704):264-266, 1970.

Isolation of rubella virus from abortion material (fetus or conceptual products) has shown that the fetus is infected by first-trimester clinical rubella, but that many fetuses are unnecessarily destroyed when pregnancy is terminated without laboratory confirmation of suspected rubella. Material was obtained from 58 cases; virus was obtained in 91% of 32 terminated cases supported by laboratory findings and in only 16% of 19 cases with either inconclusive or no laboratory confirmations. Five out of 6 cultured amniotic fluids in instances where the fetus was complete in the sac yielded virus (the fetus being infected also). When virus was not isolated from the amniotic fluid, it was found only in the placenta. There were no differences in seasonal distribution of cases in which virus was detected: rashes occurred in greatest proportions in the first or second trimester of each year when rubella was most prevalent. A diagnosis of german measles will be right in 75-80% of women with a history of rubella-like illness. Though infected embryos may not always show overt congenital defects, prolonged follow-up is necessary if minor nonstructural abnormalities, such as MR or communication defects, are not to be missed. (14 refs.) - *B. Berman.*

Withington Hospital
Manchester, M20, 8LR England

128 Prophylaxis against rubella and mumps. *British Medical Journal*, 2(5704):282-283, 1970.

Killed rubella vaccines apparently have little value, and most attention is now centered on developing living vaccines containing virus attenuated by serial passage in tissue culture. (Clinical trials have shown that its use during epidemics reduces occurrence of clinical rubella.) Attenuated strains

are selected on the basis of inability to spread infection, degree of protection afforded, and clinical effects on Ss and fetuses. The most effective protection might well be general immunization of school children when they enter school; adolescent school girls and non-pregnant women who lack rubella antibodies should be vaccinated. Prevention of reinfection may depend on effective local immunity at the virus' entry portal. Teratogenicity may be avoided by using strains which do not spread and by not vaccinating pregnant women. There is little evidence of the efficacy of standard doses of human immunoglobulin in protecting pregnant women in contact with rubella in the home. Neither immunoglobulin preparations nor inactivated or attenuated strains of mumps virus have any long-lasting immunization effect on mumps. (7 refs.) - *B. Berman.*

129 **WARREN, C. B. M.; & BROUGHTON, P. M. G.** Blue light and jaundice. *British Medical Journal*, 2(5704):299, 1970. (Letter)

In vitro experimentation and clinical observations indicate that hyperbilirubinemia associated with hemolytic disease has potential danger and that phototherapy is both helpful and harmless. Saturation of serum protein with bilirubin in infancy (saturation index) is a better assessment of hyperbilirubinemia risk than is serum bilirubin concentration. However, since accurate assessment in a jaundiced infant is difficult, phototherapy, which is simple and easily applicable in the incubator, is definitely recommended, particularly when the risks of hyperbilirubinemia outweigh the treatment hazards. (2 refs.) - *B. Berman.*

St. John's Hospital
Chelmsford, Essex, England

130 **WALKER, W.** Rh haemolytic disease: Role of liquor examination. *British Medical Journal*, 2(5703):220-223, 1970.

Liquor bilirubin examination in managing Rh-isoimmunization complications in pregnancy is superior to either the previous history or maternal antibody titer in predicting fetal hemolytic disease severity. Amniocentesis (with special needle inserted between the fetal limbs or behind the occiput) is simple and safe, if gestation is properly assessed (placental localization will avoid injury to that membrane). Liquor samples should be kept sterile and refrigerated, and testing should be done within 12 hours. Special biochemical tests avoid errors due to interfering pigments and, at times, give better forecasts than spectrometry. The various methods of interpreting liquor bilirubin levels are difficult to interpret because normal pregnancy values are not firmly established. The level is correlated with both cord hemoglobin and cord bilirubin, but the scatter in individual levels is so large that management of the technique becomes largely empirical. Since single values may sometimes underestimate disease severity, consecutive specimen analyses are recommended for improved forecasting. (66 refs.) - *B. Berman.*

University of Newcastle upon Tyne
Newcastle upon Tyne, England

131 **FINN, RONALD.** Rh haemolytic disease: Recent advances in Rh isoimmunization prevention. *British Medical Journal*, 2(5703):219-220, 1970.

Rh immunoglobulin now permits prevention of Rh-hemolytic disease, the symptom complex of jaundice, anemia, and edema (erythroblastosis fetalis) that occurs when an Rh-negative mother carries an Rh-positive baby. The transplacental hemorrhage that sensitizes the mother usually occurs at delivery and, thereafter, antibodies may show in her serum. Neutralization of the hemorrhage and prevention of the consequent Rh-hemolytic disease has been made possible by establishing ABO incompatibility between mother and fetus through injection of Rh antibody (anti-D serum) into the mother following delivery. To prevent transmission of serum hepatitis, the γglobulin fraction of the plasma which is free of the hepatitis virus and contains 7 S anti-D (the most protective antibody) is isolated. Rh immunoglobulin, now known to be highly effective, should be given to all unsensitized Rh-negative women after each delivery of an Rh-positive child. (4 refs.) - *B. Berman.*

United Liverpool Hospitals
Liverpool, England

132 **LUNAY, G. G.; EDWARDS, R. F.; & THOMAS, D. B.** Chronic transplacental

haemorrhage causing acute fetal distress. *British Medical Journal*, 2(5703):218, 1970.

A 19-year-old primigravida presented a severe chronic feto-maternal hemorrhage necessitating urgent delivery and treatment of the neonate. In the third trimester, inadequate fetal size suggested intrauterine growth retardation. During labor, irregular fetal heart rate and a thick, meconium-stained liquor yielded by membrane rupture required induced labor within 5 minutes. The neonate, very pale, yielded 40 mg of blood from the umbilical vein. The second day, the infant showed an enlarged heart, but in the following days, the heart returned to normal size and edema disappeared. Maternal blood samples and fetal cell counts indicated chronic feto-maternal bleeding. Since such hemorrhage is a cause of neonatal anemia, maternal blood should be sampled as soon as possible following delivery. (3 refs.) - *B. Berman.*

King Edward Memorial Hospital for Women
Subiaco, Western Australia

133 **PUBLIC HEALTH LABORATORY SERVICE WORKING PARTY ON RUBELLA.** Studies of the effect of immunoglobulin on rubella in pregnancy. *British Medical Journal*, 2(5708):497-500, 1970.

Immunoglobulin administered to 5,447 pregnant women exposed to rubella failed to affect the incidence of the disease when compared with a group (652) of non-pregnant women also exposed but not given immunoglobulin. The latter—in known antibody content—was given in different amounts (750 mg to over 1500 mg). Preinoculation samples showed 15% susceptibility in both groups. Of the pregnant Ss, 860 were found susceptible, and second serum samples were taken from them. A small group (41) of treated susceptible pregnant Ss was in contact with a confirmed index case of rubella in the same household; nasal and throat swabs from the index cases were examined. Area of residence and method of testing (neutralization or hemagglutination-inhibition) provided no distinguishing features nor did serological evidence or exposure to confirmed cases. Immunoglobulin cannot be expected to protect against fetal abnormality after exposure to rubella; active immunization before pregnancy is recommended. (8 refs.) - *B. Berman.*

Central Public Health Laboratory
Colindale, London N. W. 9, England

134 **BARRIE, HERBERT.** Phototherapy for jaundice. *Lancet*, 1(7651):835, 1970. (Letter)

The use of phototherapy for jaundice is reported for a case where initial attempts at an exchange transfusion were unsuccessful. At 2 hours after birth, the infant was pale and jaundiced. By the sixteenth hour, serum bilirubin had risen from 4.1 to 13.8 mg/100 ml and venous blood hemoglobin had dropped from 11.6 to around 10 g/100 ml. At the eighth hour, an exchange transfusion was planned; however, several attempts at cannulation of veins and arteries and withdrawal of blood were unsuccessful. Extra glucose drinks, phenobarbitone (5 mg, 8-hourly), and improvised phototherapy were administered. The skin blanched after a few hours, and at 3 days serum bilirubin levels began to fall. An uninterrupted recovery followed, and a transfusion by scalp vein was given on the twelfth day. Phototherapy equipment utilized was a fluorescent X-ray viewing box with tubes about 25 cm from the skin. Eyes were covered and the temperature was monitored during exposure. (2 refs.) - *M. S. Fish.*

Charing Cross Hospital
London W.C.2, England

135 Phototherapy for neonatal jaundice. *Lancet*, 1(7651):825-826, 1970. (Editorial)

Phototherapy has been shown to be effective in the treatment and prevention of hyperbilirubinemia of prematurity. While exchange transfusions are indicated in cases of acute hemolytic diseases where serum bilirubin rises sharply, phototherapy can also be useful in decreasing the number of transfusions which such cases usually require. No evidence has been found for toxicity of the photo-oxidation products of bilirubin, and these materials do not appear to compete with bilirubin for binding with albumin. Exposure to light decreases both conjugated and unconjugated bilirubin. Premature infants nursed in an area

having 90 foot candles of light at skin level had lower serum bilirubin concentrations than did a control group maintained in an ordinary nursery. Whether commercial or improvised equipment is utilized, it should be electrically safe; and covering of the infant's eyes and monitoring the temperature and serum bilirubin concentration are essential. (12 refs.) - *M. S. Fish.*

136 **WARREN, C. B. M.; & BROUGHTON, P. M. G.** Phototherapy for jaundice. *Lancet*, 1(7654):1003, 1970. (Letter)

Although a recent report of the use of an improvised X-ray viewing box as a phototherapy unit for jaundice lacked convincing evidence of its effectiveness in one particular case, this method of treatment is a promising one and, with proper precautions, should gain wider acceptance. Another controlled clinical trial, which utilizes a purpose-made unit, affords promising results. These units are available commercially in the United States and in Britain and should prove useful in neonatal departments. (3 refs.) - *M. S. Fish.*

St. John's Hospital
Chelmsford, England

137 **LEVKOFF, ABNER H.; FINKLEA, JOHN F.; WESTPHAL, MILTON C.; & PRIESTER, LAMAR E., JR.** Bilirubinometry of jaundiced serum exposed to light: Malloy-Evelyn vs. direct spectrophotometric technique. *Israel Journal of Medical Sciences*, 6(3):432-434, 1970.

Prolonged *in vitro* exposure to light of sera from low birth weight infants decreases the diazotization capacity of the sera bilirubin to a greater extent than the decrease in light-absorbing capacity as measured at 455 and 461 mμ. Sixteen samples of sera from low birth weight infants with no isoimmune disease and 16 standard bilirubin control samples were assayed for bilirubin content both before and after exposure to 150 foot candles of ambient fluorescent light for 24 hours at room temperature. Mean decrease in bilirubin concentration ("fall") was 5.3 and 2.0 mg/100 ml for the sera samples as measured by the Malloy-Evelyn diazo technique and by a bilirubinometer at 461 mμ, respectively. Corresponding mean falls for control samples were 10.3 and 5.0 mg/100 ml, respectively. The absorbance values obtained from a continuous recording spectrophotometer (Beckman DK-2) at 455 mμ were within 2 to 8% of those obtained from the bilirubinometer. Measurement of both direct diazo reacting and indirect bilirubin fractions in 4 sera samples with marked elevation of the direct fraction (above 4 mg/100 ml) showed that light exposure caused a significant fall in this fraction, ranging from 1.9 to 10.9 mg/100 ml, although the control samples showed increases in this fraction following light exposure. The marked observed difference in bilirubin fall (over 2-fold) as measured by the diazotization and spectrophotometric techniques deserves attention during the treatment of neonatal jaundice by illumination and the measurement of serum bilirubin levels. (7 refs.) - *M. S. Fish.*

Medical University of South Carolina
Charleston, South Carolina 29401

138 **LYLE, W. H.** Encephalomyelitis resembling benign myalgic encephalomyelitis. *Lancet*, 1(7656):1118-1119, 1970. (Letter)

The symptoms of rapid fatigue characteristic of encephalomyelitis due to echovirus type 9 are quickly measurable by having the patient write for 2 minutes, occluding the circulation in the arm with a sphygmomanometer, and then having the S continue to write. If the S stops before 30 additional seconds, the muscle fatigue is likely attributable to the encephalomyelitis caused by the virus rather than to other causes such as hypochondria or polyradiculitic or myalgic illnesses. A recent case confirmed the validity of this measurement when the S stopped writing at 17 seconds after occlusion of circulation. An outbreak in 1956 of the virus-induced disease affected a number of children and adults; among the latter the symptoms (headache, nausea, rash, lymph node enlargement) were usually less severe, although 2 men became seriously ill. These Ss had a 2-week rise in titer of neutralizing antibody to echovirus type 9 (1/8 to 1/64 and 1/64 to 1/512, respectively). Neither had fully recovered a year later. (3 refs.) - *M. S. Fish.*

Newton-le-Willows
Lancashire, England

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139 **BOWMAN, J. M.** Transplacental haemorrhage after abortion. *Lancet*, 1(7656):1108, 1970. (Letter).

Anti-D immune globulin should be administered to all Rh-negative primigravid patients who abort. Although the overall risk of rhesus immunization in these patients is believed to be approximately only 0.5 to 1% (about one-tenth to one-twentieth the risk following term delivery), available supplies of anti-D immune globulin should be increased sufficiently to provide for the prophylaxis of all such patients. In 2 recent cases, both unmarried Rh-negative students, 1.0 and 1.2 ml of Rh-positive fetal blood was found in a 15-year-old S who was aborted at 15 weeks and another S who was aborted at 18 weeks, respectively. Risk of rhesus immunizations from transplacental hemorrhages in such cases are at least 50%, and both Ss were given anti-D immune globulin. (1 ref.) - *M. S. Fish.*

Winnipeg Rh Institute, Inc.
735 Notre Dame Avenue
Winnipeg 3, Canada

140 Neurological complications of tuberculosis. *Lancet*, 1(7656):1094-1095, 1970. (Editorial)

Early diagnosis and systemic triple chemotherapy (isoniazid, para-aminosalicylic acid, and streptomycin) are of great importance in the treatment of tuberculosis of the nervous system. Although the incidence of tuberculosis has declined in recent years in the United Kingdom, it still merits considerable attention in underdeveloped countries and among immigrants coming from those countries. Mortality from tuberculosis meningitis remains high among patients admitted in a coma (50%) and those with drowsiness or focal signs in the central nervous system (30%); prognosis is worse for the very old and very young and in cases where treatment is delayed. Late sequelae include MR, epilepsy, hemiplegia, hydrocephalus, hydromyelia, paraplegia, blindness, deafness, and hypothalamic and pituitary disturbances. Of a group of 18 recent patients (including 12 immigrants) all presented with unusual neurological manifestations and 9 with a variety of focal lesions of the central nervous system. In another group of 9 patients with paraplegia, no radiological evidence of bone disease was found. With recent immigration to Britain from high-risk countries on the increase, this disease requires continued attention, particularly since initial symptoms are often atypical. (28 refs.) - *M. S. Fish.*

141 **ADAMS, JOHN M.** Persistence of measles virus and demyelinating disease. *Hospital Practice*, 5(5):87-96, 1970.

Identification of traces of measles virus in measles encephalitis and in post-mortem studies of central nervous system tissues of multiple sclerosis (MS) patients brings up the possibility that demyelinating diseases may result from delayed expressions of slow virus infections, probably by the measles virus. The primary demyelinating diseases pose major problems in terms of classification and therapy. Recent evidence that viral infection, particularly by the measles virus, may have etiological significance for these diseases provides hope that prevention may be possible. Clinical and histopathological changes observed in a number of demyelinating diseases are very similar and, as a consequence, may have a common etiology. Subacute sclerosing panencephalitis has been related recently, by a variety of techniques, to measles virus in a number of cases. In MS, the correlation is much less persuasive, but the epidemiology of this disorder has features similar to those of measles encephalitis. More definitive proof of the latter relationship would require actual detection of the virus in central nervous system tissues of MS patients, although the presence of the virus may not be demonstrable if an indirect effect, such as an autoimmune reaction, is involved. If a relation does exist, the advantages of prophylactic protection against the measles virus are obvious. (9 item bibliog.) - *M. S. Fish.*

University of California School of Medicine
Los Angeles, California 90031

142 **DOXIADIS, SPYROS.** Phenobarbital prophylaxis for neonatal jaundice. *Hospital Practice*, 5(10):115-124, 1970.

Antepartum administration of phenobarbital (PB) appears to be useful in the reduction of death or permanent disability from bilirubin encephalopathy, whether due to factors which cause excess hemolysis or those related to deficient interhepatic bilirubin conjugating enzymes. The procedure may

also be useful in reducing the need for exchange transfusions in cases of severe hyperbilirubinemia. A study of the use of PB in 3 areas of Greece (Athens and the islands of Rhodes and Lesbos) showed a marked reduction in the incidence of neonatal jaundice, including that apparently associated with a deficiency of glucose-6-phosphate dehydrogenase activity. The usefulness of the finding is emphasized by the fact that on Lesbos 43% of the children with the enzyme deficiency had a severe form of the jaundice and that facilities for exchange transfusions are often unavailable. In one study conducted on Lesbos and in Athens, 60% of the treated mothers (those taking a total of lg or more PB, at doses of 100 mg/day, starting on the thirty-sixth week of gestation) had children with bilirubin values below 4 mg/100 ml on the fourth day, compared with 23% of the infants of untreated mothers. In another study on Lesbos, 506 infants born to control mothers were compared with 220 born to treated mothers. ABO incompatibility was present in 66 and 37 cases of the control and treated groups, respectively. Where ABO incompatibility was not present, 30 (7.2%) of the control and 1 (0.5%) of the treated group had marked neonatal jaundice. Among the ABO incompatible group 10 (15%) of the 66 controls and 2 (5.4%) of the 37 treated Ss had marked jaundice. Five of the former and 1 of the latter group required exchange transfusions. (10-item bibliog.) - *M. S. Fish.*

Institute of Child Health
Athens, Greece

143 **HANSHAW, JAMES B.** Cytomegalovirus infection and cerebral dysfunction. *Hospital Practice*, 5(9):111-120, 1970.

Congenital cytomegalovirus (CMV) infection may be a much more common form of intrauterine infection than was earlier believed and may result in various neurologic sequelae. A type of mononucleosis, a hepatitis-like disorder, or ulcerative lesions of the gastrointestinal tract may result from postnatal infection by the virus. Approximately 6-15/1,000 unselected infants excrete CMV at birth, and of these, more than 10% have significant central nervous system (CNS) damage. Extrapolation of figures now available indicates that, nationwide, about 4,000 children may be born each year with CNS disease induced by the virus. In a 1962 study of 17 infected infants, most had CNS involvement; 14 were microcephalic, the condition being apparent at birth for 5. Other CNS involvements were paraparesis or diplegia with spasticity in 6, chorioretinitis in 5, cerebral calcifications in 4, seizures in 3, blindness in 3, and optic atrophy in 2. The only death from the group was that of a severely retarded child. Another study of 7 infants infected at birth revealed that 5 were MR, 1 was microcephalic, and 1 had massive brain necrosis. Of a third group of 20 infected infants, 5 died and 7 of the survivors (5 with microcephalus) showed severe psychomotor retardation. Evaluation of a fourth group of 18 showed that 12 of 13 with neurologic sequelae had significant CNS disorders with microcephaly, psychomotor retardation, and other disabilities. The degree to which the undiagnosed infection may cause later perceptual, learning, hearing, and behavioral disorders is unknown. Extraneural abnormalities associated with the infection include cardiac anomalies, clubfoot, pulmonary valvular stenosis, cleft palate, and hepatic diseases. Diagnostic techniques include detection of 19S-CMV antibody or direct virus isolation. (9-item bibliog.) - *M. S. Fish.*

University of Rochester School
of Medicine and Dentistry
Rochester, New York 14620

144 **CRAIG, J. M.; & FELLERS, F. X.** Kidney, spleen and liver necrosis following intrauterine fetal transfusions. *Biology of the Neonate*, 16(4):197-208, 1970.

Tissue necrosis of the kidney, spleen, and liver in infants may be caused by the use of intra-organ injection of a concentrated dye which is used to localize fetal intraperitoneal transfusion for Rh incompatibility. Comparable procedures can cause similar damage in the newborn rat. Of 111 fetuses and infants dying from erythroblastosis fetalis over a 6-year period, approximately 50% were stillborn. Sixty-five of the group had received 1 or more intrauterine transfusions. Autopsy of 5 of these cases showed damage to the viscera; 4 had significant kidney necroses, and all had liver enlargement and damage to the spleen, the areas of necrosis in the latter being bordered by a sharp zone of fibrous tissue. Observations of 2 living cases showed severe renal impairment; however, the lesions appeared quiescent. Of 13 newborn rats injected with 0.1 - 0.2 ml of meglumine diatriozate through the abdominal wall into the spleen and kidney, all showed lesions comparable to those observed in the newborn infants. Intraperitoneal

injections of the same amount of dye into the newborn rat produced no observable abnormalities after a 1-week period. (4 refs.) - *M. S. Fish.*

Harvard Medical School
Boston, Massachusetts 02115

145 **FARRAND, R. J.** Recurrent haemophilus septicaemia and immunoglobulin deficiency. *Archives of Disease in Childhood,* 45(242):582-584, 1970.

A 15-month-old boy developed meningitis and a subsequent attack of osteomyelitis, and both times *Hemophilus influenzae* type B was isolated from the blood. The organism was consistently isolated from other members of the family. The patient showed a deficiency of both immunoglobublin (Ig)A and IgG with a reciprocal increase in IgM. The integrity of IgA and IgG may be essential to prevent recurrent *Hemophilus influenzae* infection. (13 refs.) - *E. L. Rowan.*

Hope Hospital
Salford, M6 8HD England

146 **EVANS, D. I. K.; & HOLZEL, A.** Immune deficiency state in a girl with eczema and low serum IgM: Possible female variant of Wiskott-Aldrich syndrome. *Archives of Disease in Childhood,* 45(242):527, 533, 1970.

An 11-year-old girl had a history of eczema, recurrent infections (including 3 attacks of herpes simplex and 5 of pneumococcal meningitis), lymphopenia, low immunoglobulin M, impaired delayed hypersensitivity, and low isohemagglutinins. The only differences between this syndrome and the sex-linked Wiskott-Aldrich syndrome, besides the sex of the patient, are thrombocytopenia and normal lymphocyte transformation in the latter. These minor differences must not obscure the basic similarities in the group of immune deficiency disorders. (26 refs.) - *E. L. Rowan.*

Booth Hall Children's Hospital
Blackley, Manchester, England

147 Cytomegalovirus infection in the north-west of England: A report on a two-year study. *Archives of Disease in Childhood,* 45(242):513-522, 1970.

A 2-year survey in Manchester, England, revealed 36 cases of congenital cytomegalovirus infection. Six cases with central nervous system (CNS) involvement and microcephaly were MR as were 2 of 11 cases with splenomegaly without CNS involvement. None of the 5 cases with other symptoms or 14 cases who were normal at birth showed MR. Virus was excreted by 3.2% of children admitted to hospital, but this was unrelated to any clinical condition except MR and CNS lesions. Up to 18% of children completing primary school has been exposed to the virus as has been 55% of adults. The adult forms of illness may be manifest as glandular fever, hepatitis, and polyneuritis. More investigation needs to be done on this ubiquitous disease. (30 refs.) - *E. L. Rowan.*

148 **KATTAMIS, C.; TOULIATOS, N.; HAIDAS, S.; & MATSANIOTIS, N.** Growth of children with thalassaemia: Effect of different transfusion regimens. *Archives of Disease in Childhood,* 45(242):502-505, 1970.

Children with homozygous β-thalassaemia maintained normal rates of growth as determined by height and weight when their hemoglobin levels were kept in the normal range by the use of frequent transfusions. Normal growth was observed in a group of 38 children whose hemoglobin level was maintained above 8 gm/100 ml, whereas 14 children whose pretransfusion levels were from 6 to 8 gm/100 ml and 22 children whose hemoglobins were below 6 gm/100 ml showed growth retardation. Frequent transfusions, despite their disadvantages, offer these children the best chance for normal life. (12 refs) - *E. L. Rowan.*

St. Sophie's Children's Hospital
Athens 608, Greece

149 **WINDORFER, A.; & SITZMANN, F. C.** Neurological disease of enteroviral origin in children. *German Medical Monthly,* 15(7):369-374, 1970.

A survey of 200 children with severe neurological disease in Germany during 1964-1968 revealed that most cases were due to enteroviruses, with

poliovirus only minimally apparent. Five clinical groups were ascertainable on the basis of prominent manifestations: serous meningitis, encephalitis and meningoencephalitis, acute cranial-nerve paralysis, polyradiculoneuritis, and myelitis. Virological and serological studies identified the origin of most of the illnesses and pointed to a true increase in neurological disease of enteroviral origin, with the exception of polio. Ss with meningitis and cranial-nerve paralysis required no therapy but bed rest and analgesics; Ss with encephalitis and polyradiculoneuritis received intensive corticoid and ACTH therapy (which was effective if begun early enough and at high dosage levels). Of the 200 Ss, 23 died, 130 recovered completely, 19 had severe residual defects, 14 were left with lesser neurological disturbances (such as facial paralysis), 5 developed epilepsy, and 6 showed EEG changes. (40 refs.) - *B. Berman.*

University of Erlangen
Nurnberg, Germany

150 **WITH, TORBEN K.** Early detection of lead toxicity. *Lancet,* 1(7655):1054-1055, 1970. (Letter)

Determination of urinary S-aminolevulinic acid (ALA) is simpler and more specific than determination of coproporphyrin in lead toxicity. Recent evidence has shown that a simplified ALA method (quantitative spectrophotometry read in filter-photometers) is sufficient in controlling lead intoxication. (6 refs.) - *B. Berman.*

Centralsygehuset
Svendborg, Denmark

151 Early detection of lead toxicity. *Lancet,* 1(7649):704-705, 1970. (Editorial)

Emphasis in medical care of individuals subjected to lead exposure has passed from early detection of poisoning to lead-level measurements in blood and urine, and measurement of complex substances resulting from interference with the enzyme systems involved with their synthesis. One problem now is deciding under what conditions to use several available sensitive indicators of lead absorption. Of the 2 most reliable biochemical indexes of lead exposure—estimation of coproporphyrins and 5-aminolevulinic acid (ALA) in the urine—the first is simple, rapid (approximately 1 minute/person), more sensitive, and more satisfactory, particularly with lead-exposed workers. Estimation of the activity of the enzyme ALA dehydratase, the most sensitive index of lead effects in the human body, has been suggested for detection when individuals are exposed to ordinary environmental pollutants (particularly auto-exhaust gases); however, this test is not suitable for industrial use. New cars with lower engine-compression ratios are needed to reduce atmospheric lead. (9 refs.) - *B. Berman.*

152 Vaccination against meningococcal disease. *Lancet,* 1(7648):663, 1970. (Editorial)

Clinical trials of vaccines prepared from purified polysaccharides indicate that they provide type-specific protection against meningococcal disease. The incidence of infection by group-C strains was reduced by the group C vaccine, but it did not affect group-B strains. Although future research will probably use polyvalent meningococcal vaccine prepared against purified polysaccharides of the 3 major groups, antigenic competition may reduce the antibody response to one or more component antigens. Timing of vaccinations will be a problem with adults and infants. It seems doubtful that the purified polysaccharide antigen will be able to control meningococcus without strong continued support from antibiotics and chemotherapeutic agents. (3 refs.) - *J. K. Wyatt.*

153 Defining rubella immunity. *Medical World News,* 11(19):18-19, 1970.

Army recruits (12 out of 15) who had been vaccinated with the Cendehill strain became 'infected' during a rubella epidemic 2 to 3 months later. Although the recruits did not show clinical symptoms, they evidenced striking increases in antibody titer. Of 149 naturally immune recruits, only 4% became infected. Twenty-six susceptible recruits became infected, and 9 became clinically sick. This study raises a question as to the sturdiness of resistance in a young adult vaccinated in childhood when compared with an individual with natural immunity. "Herd" immunity to rubella may be difficult to achieve. Vaccine research indicates that although vaccinees re-exposed to the disease evidence an increase in

antibody titer, this increase is less than that induced by natural infection and, therefore, involves reduced overall risk. (No refs.) - *J. K. Wyatt.*

154 In preemies: beware kernicterus. *Medical World News*, 11(10):20, 1970.

Kernicterus is fatal to one-half affected full-term infants and three-fourths of the premature infants who have it. Survivors generally develop athetosis, deafness, MR or other neurological defects. Treatment of choice is a preventive exchange transfusion which should be performed if serum bilirubin level reaches 20% mg. However, replacement should be carried out at a lower concentration if the infant has asphyxia, respiratory distress syndrome, hypoglycemia, acidosis, sepsis, meningitis, or hyaline membrane disease. In one study, 9 of 15 babies who died between the third and seventh day of life had respiratory distress syndrome and acidosis as well as kernicterus and bilirubin levels ranging from 15.6 mg% to 9.4 mg%. None of these children displayed clinical signs of kernicterus. This represents 65% of autopsies of infants of low birth weight who died during the third to seventh day of life in one hospital over a 2-year period. Exchange transfusions may be made at levels as low as 13-14 mg%, if an infant shows good evidence of survival. (No refs.) - *J. K. Wyatt.*

155 Are the Cocksackie B viruses teratogenic? *Medical World News*, 11(10):16-17, 1970.

The findings of a 10-year epidemiological survey demonstrate a significant relationship between group B Cocksackie viruses in the mother during pregnancy and increased incidence of congenital heart defects in the offspring. There was also a significant relation between Cocksackie group A and group B infections in the mother and birth defects in the gastrointestinal and genitourinary tract. Of 22,500 deliveries, 935 evidenced some type of congenital deformity. Infections during pregnancy which were low-grade and subclinical and produced very mild symptoms in the mother had a devastating effect on the fetus. (No refs.) - *J. K. Wyatt.*

156 Alerting MDs to the hazards of herpes. *Medical World News*, 11(12):42C, 42E, 1970.

Herpes infections of the newborn are associated with eczema, infection of the cornea, central nervous system damage, skin lesions, blindness, and MR and may occur more frequently than most physicians realize. Pregnant women with cold sores should have a cervical smear to check for the presence of herpes. When the mother is infected with this virus, cesarean section should be used to prevent contact of the fetus with the mother's infected genital tract. *Herpesvirus hominus* (HVH) presents 2 serologically different types: HVH I which usually infects the upper part of the body and HVH II which is usually involved in the genital tract. HVH increases risk of abortion especially when it is a long-standing infection. Genital HVH infection has been associated with cervical cancer and cervical anaplasia. (1 ref.) - *J. K. Wyatt.*

157 Rubella shot spares fetus. *Medical World News*, 11(16):6, 1970.

The rubella vaccine virus did not appear to cross the fetal barrier and place the fetus at-risk in a woman who was inadvertently vaccinated 2 weeks after conception. An abortion was performed 69 days after vaccination. The virus was not present in tissue suspension and explant cultures of fetal tissues; however, the virus was present in the placental portion and in specimens of the decidua and placenta. (No refs.) - *J. K. Wyatt.*

158 Fetal infection could be worse than famine. *Medical World News*, 11(21):17, 1970.

Data from a continuing study of 1,002 consecutive autopsies of babies indicate that infection resulting from inducing early delivery may be more important than fetal undernutrition in regard to high perinatal mortality among the poor. There was anatomic evidence of antenatal infection in the placenta, membranes, umbilical cord, and/or organs in 36% of the cases. Infant organs were involved in infection in 77% of the cases. Increase of infection was directly related to economic status and race, although poverty was more related to increased incidence of fetal infection than race. Infection seemed to antedate labor and rupture of the membranes. In 55% of the cases, a specific

organism was identified. The most common were Gram-negative organisms. (No refs.) - *J. K. Wyatt.*

159 **ALFORD, CHARLES A.** Immunologic status of the newborn. *Hospital Practice,* 5(6):88-94, 1970.

Neonatal immunoglobulin M (IgM) levels can be used as an index of degree of intrauterine antigenic stimulation. The IgM level of the neonate provides a nonspecific indicator of infection, especially in a high-risk group. When the possibility of infection has been confirmed, its specific nature can be ascertained by testing for immunoglobulins specific for a particular pathogen or for the pathogen itself. In one study, infants who showed an IgM level of 20 mg% or higher were subjected to a series of tests and hospitalized for a minimum of 2 weeks for follow-up. Of 6,914 infants examined over a 2-year period, 192 had elevated IgM levels, and specific infections were identified in 69. Diseases identified included cytomegalovirus infection, toxoplasmosis, rubella, syphilis, bacteremia, aseptic meningitis, and *Treponema pallidum*. Almost all were asymptomatic at birth, although more than half exhibited evidence of central nervous system involvement. Follow-up during the first year revealed signs of slowed psychomotor development. When the IgM screen was used as the initial step in defining high-risk babies, chronic congenital infections were detected at a rate of 1/100 to 1/200 general deliveries. The great majority of infected infants would not have been identified if clinical criteria had been the sole means used for detection. (No refs.) - *J. K. Wyatt.*

University of Alabama
Birmingham, Alabama 35233

160 **KRIEL, ROBERT L.; GATES, GEORGE A.; WULFF, HERTA; POWELL, NELSON; POLAND, JACK D.; & *CHIN, TOM D. Y.** Cytomegalovirus isolations associated with pregnancy wastage. *American Journal of Obstetrics and Gynecology,* 106(6):885-892, 1970.

Cytomegalovirus (CMV) was isolated from placental cell cultures derived from abortions during the first 26 weeks of gestation in 5 of 59 pregnancies, and CMV-like agents were recovered in 9 additional pregnancies. Neither history of maternal illness nor the presence of maternal complement fixation antibodies correlated with CMV isolation. Placental cell cultures were established in 49 of the 59 pregnancies, and successful fetal kidney cell cultures were achieved in 5 of 9 pregnancies. No cytopathic agents were found in the 5 kidney cell cultures. Although primary recognition of all CMV isolation was in green monkey kidney cultures, these isolates were probably human in origin. (18 refs.) - *J. K. Wyatt.*

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Kansas City, Kansas 66103

161 **CARLTON, M. A.; & SINHA, R.** Liquor bilirubin values in early pregnancy. *Journal of Obstetrics and Gynecology of the British Commonwealth,* 77(3):221-225, 1970.

Data obtained from measurement of liquor bilirubin concentrations had the least prognostic value for hemolytic disease, particularly between severe and moderate cases, the closer the gestation was to 18-19 weeks. Chemical and spectrophotometric studies were made of liquor in 80 normal pregnancies between the eighth and forty-second weeks of gestation and in 30 Rh-negative mothers with antibodies who later delivered affected fetuses. The highest correlation between chemical and spectrophotometric measurements was obtained from observations made at $\Delta 450\ \mu$. Of 15 severely affected patients, 9 had a history of previous intrauterine death, and 6 had a history of disease of moderate severity. Prognostic criteria for the diagnosis of hemolytic disease in the fetus may be applied prior to 28 weeks when the normal $\Delta 450M\ \mu$ curve and the curve designating 0.5% confidence limit are used. Accurate criteria for intrauterine transfusion cannot be obtained from the values before 23-24 weeks of gestation, the time when more emphasis should be on obstetric history. (10 refs.) - *J. K. Wyatt.*

West Middlesex Hospital
Isleworth, England

162 **MACAFEE, C. A. J.; FORTUNE, D. W.; & BEISCHER, N. A.** Non-immunological hydrops fetalis. *Journal of Obstetrics and*

Gynaecology of the British Commonwealth, 77(3):226-237, 1970.

Of 33 cases of non-immunological hydrops fetalis due to causes other than blood group incompatibility, 13 were idiopathic, 6 were associated with twin pregnancies, 7 had major malformations, and 7 had various associated diseases. Cases of idiopathic hydrops exhibited a high incidence of pre-eclampsia, polyhydramnios and prematurity. The association between maternal anemia (3 of 13 cases) and idiopathic hydrops was more significant than that between hydrops fetalis and any other fetal malformation except adenomatoid hamartoma of the lung. The presence of low urinary estriol excretion in 2 cases of idiopathic hydrops suggests that hydrops probably represents chronic feto-placental dysfunction. Placental weights were similar to those seen in erythroblastosis. There were 2 cases of E trisomy and 2 cases where the diaphragm was absent or diaphragmatic hernia was present. Fetal anemia or diabetes were not found, and fetal plasma protein levels were not consistently low. Only one of 22 subsequent pregnancies was complicated; this pregnancy resulted in a surviving hydrops infant. These 33 cases of non-immunological hydrops represent an incidence of 17.6% in a consecutive series of 182 cases of hydrops fetalis. (16 refs.) - *J. K. Wyatt.*

University of Melbourne
Melbourne, Australia

163 **HILDEBRANDT, RICHARD J.; & WEBER, JEAN M.** Immunization of young adult females with the Cendehill strain of rubella vaccine. *American Journal of Obstetrics and Gynecology*, 107(4):645-647, 1970.

Side effects were reported by 27 (48.2%) of 56 young adult females (CA range 16 to 36 years) vaccinated with the Cendehill strain of rubella vaccine. The most frequently noted side effect was adenopathy (23.2%). There were 5 cases of arthralgia (8.9%). Response to vaccine in 54 cases was a 4-fold or greater rise in antibody titer on post-vaccination blood samples obtained between 26 and 74 days after vaccination. Symptomatology and degree of antibody response did not correlate. Since the side effects of the Cendehill strain of rubella vaccine appear to be infrequent and mild, the Cendehill strain is preferred over the HPV-77 strain for use in young adult females. (7 refs.) - *J. K. Wyatt.*

University of Florida College of Medicine
Gainesville, Florida 32603

164 **BURROWS, STANLEY.** Slide rule management of erythroblastosis fetalis. *American Journal of Obstetrics and Gynecology*, 107(4):651-652, 1970.

A slide rule method based on a chart designed by Little, McCutcheon, and Desforges is used for the interpretation of amniotic fluid analyses in the management of erythroblastosis fetalis. This technique provides a quick indication of the zone of severity and the relationship of the optical density difference to the line which divides zones of mild and moderately severe hemolytic disease. Probable degree of hemolytic disease in the fetus with a correction for gestational age is provided. Additional quantifications of data on severity of hemolytic disease provide a more exact evaluation of progressing severity of disease and its prognosis. Detailed information on the slide rule is provided. (3 refs.) - *J. K. Wyatt.*

Cooper Hospital
Camden, New Jersey 08103

165 **KISH, M. Y.; MARKO, JOHN; & LETTS, H.** Bilirubin estimation in amniotic fluid: A comparative study of 60 cases. *American Journal of Obstetrics and Gynecology*, 106(4):592-596, 1970.

The Liley method for estimating amniotic fluid pigment was more reliable than a quantitative bilirubin estimation in the management of 60 isoimmunized patients. Amniocentesis was based on history of a stillborn infant or one who required an exchange transfusion, a high or rising antibody titer, or the appearance of an antibody titer. Optimum delivery time was decided on the basis of an overall examination of obstetrical history, prenatal antibody titers, fetal maturity, optical density zone, and bilirubin levels. Of 6 deaths, 4 were zone C hydropic infants, 1 was a high zone B infant who died during the third exchange transfusion, and 1 was a zone A, Rh-negative infant who died of respiratory distress syndrome. Four deaths were due to severe hemo-

lytic disease. All zone C infants were moderately or severely affected and required transfusion as did those in the upper half of zone B. The Liley method provided a more accurate assessment of the 17 Rh-negative infants. Among 27 transfused infants, 65% had a positive history. Only 35% of non-transfused infants had a positive history. High antibody titers were present in 75% of transfused and 50% of nontransfused infants. Average gestation for first amniocentesis among the 10 zone C cases was 32.5 weeks. Several amniocenteses should have been performed earlier and intrauterine transfusion should have been considered in some cases. (12 refs.) - *J. K. Wyatt.*

No address

166 **BATES, HAMPTON R., JR.** Cocksackie virus B3 calcific pancarditis and hydrops fetalis. *American Journal of Obstetrics and Gynecology*, 106(4):629-630, 1970.

The presence of Cocksackie virus B3 antigen in the myocardium is associated with fetal cardiac failure and universal edema of the newborn. Gross findings exhibited by a stillborn infant delivered of a multigravida in the eighth month of gestation included: severe edema of subcutaneous tissues; serosal cavities which contained clear, colorless fluid that had compressed the thoracic and abdominal viscera; and fibrotic and dilated heart ventricles with a thickened and opaque ventricular nural endocardium. (5 refs.) - *J. K. Wyatt.*

Dixie Hospital
Hampton, Virginia 23369

167 **DELANEY, JAMES J.; & PTACECK, JOHN.** Three decades of experience with diabetic pregnancies. *American Journal of Obstetrics and Gynecology*, 106(4):550-556, 1970.

Despite increased knowledge regarding diabetes and pregnancy, overall fetal salvage has not improved. Prenatal mortality rate for 226 diabetic women who had 357 pregnancies over a 28-year period was 12.3%. Fetal loss was primarily related to poor control of diabetes. To improve the perinatal mortality rate of diabetic women, care for diabetics should be centralized and standardized under a team composed of an obstetrician, an internist, and a pediatrician. Probable outcome for each patient should be prognosticated on the basis of classification and previous history. Timing of delivery should be individually determined and based on a variety of parameters. Unless specific indications for preterm delivery are presented, class A diabetics should not have preterm delivery. Optimal control of diabetes is the most important aspect of improving prenatal mortality. (12 refs.) - *J. K. Wyatt.*

University of Colorado Medical Center
Denver, Colorado 80220

168 **BYINGTON, D. P.; CASTRO, A. E.; & BURNSTEIN, T.** Adaptation to hamsters of neurotropic measles virus from subacute sclerosing panencephalitis. *Nature*, 225(5232):554-555, 1970. (Letter)

Adaptation of a subacute sclerosing panencephalitis (SSPE) measles virus isolated from the brain of a documented SSPE case to hamster baby brains yielded brain-grown virus (HBS), which, after intracerebral inoculation of 2-day-old hamsters, produced neurological signs of severe viral encephalitis. HBS virus—identified as that of measles—grew well in cell cultures and displayed characteristics of measles effects (nuclear and cytoplasmic inclusion bodies and hemagglutinin production). Availability of an SSPE-derived neurotropic measles variant should provide a model for clarifying the measles—virus role in SSPE. (9 refs.) - *B. Berman.*

Purdue University
Lafayette, Indiana 47907

169 **KAPLAN, A. E.; BROWN, L. V.; & SALK, J.** Increases in serum lactate dehydrogenase in experimental allergic encephalomyelitis. *Nature*, 225(5230):384-385, 1970. (Letter)

To determine a rapid, quantitative index of response to induced experimental allergic encephalomyelitis (EAE), the disease was induced by inoculating rabbits with an emulsion of bovine spinal-cord serum lactate dehydrogenase (LDH) and was measured spectrophotometrically and electrophoretically in both experimental and control animals. In all animals, LDH activity increased

over a wide range in the serum samples, which is in agreement with clinical observations of EAE. (7 refs.) - *B. Berman.*

Salk Institute
La Jolla, California 92037

170 **LONDON, W. T.; FUCCILLO, DAVID A.; ANDERSON, BLANCHE; & SEVER, JOHN L.** Concentration of rubella virus antigen in chondrocytes of congenitally infected rabbits. *Nature*, 226(5241):172-173, 1970. (Letter)

Of 24 rabbits without rubella hemagglutination inhibiting antibody, 12 were inoculated with tissue-culture fluid containing "wild" rubella virus to determine, with the indirect fluorescent antibody technique, the major infection sites; 12 controls were injected with uninfected tissue-culture fluid. Evaluation revealed 10 pregnancies among the rubella-inoculated animals, and 7 among the controls. Rubella virus was isolated from throat swabs from the infected does and their placentas; no virus was recovered from controls or their conception products. Lung and spleen sections from infected animals showed small foci of fluorescence, and in many sections, more than half the chondrocytes revealed specific immunofluorescence which was not demonstrated in controls. A high concentration of viral antigen isolated from cartilaginous tissue suggested a rubella predilection that could produce the growth retardation observed in rabbits by interfering with chondrocyte maturation and ossification. A comparable mechanism could explain growth retardation and bone radiolucencies observed in rubella-infected humans. (11 refs.) - *B. Berman.*

National Institute of Neurological
Diseases and Stroke
Bethesda, Maryland 20014

171 **HUANG, ALICE S.; & BALTIMORE, DAVID.** Defective viral particles and viral disease processes. *Nature*, 226(5243):325-327, 1970.

Biologically active defective viral particles (consisting of viral structural proteins and a portion of the viral genome) occur in many and possibly all animal-virus systems and may significantly affect the progress of viral infections—both acute, self-limiting, and slow, persistent types. These defective-interfering (DI) particles are antigenically identical to standard virions, except for small, unidentified RNA pieces in place of the largest RNA species. Very occasionally, a DI particle appears in a cell infected with standard virions, then replicates with the latter and eventually becomes the predominant component in viral progeny. Not yet isolated from naturally occurring infections, DI particles prolong viral survival in influenza, Rift Valley fever, lymphocyte choriomeningitis, and measles. The interference with standard viral growth is usually detected when cells are infected with high multiplicities of unpurified virus. The species of host cells greatly influences DI-particle synthesis. (41 refs.) - *B. Berman.*

Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

172 **ENTE, GERALD; & KLEIN, S. W.** Hazards of phototherapy. *New England Journal of Medicine*, 283(10):544-545, 1970. (Letter)

Although no serious clinical toxicity has been recorded in over 5,000 reported cases treated with light over a period of 1-12 years, physicians must be aware of the possible hazards of this treatment, especially to the neonate. Hazards to animals include retarded growth, eye damage, delayed pineal development, retarded gonadal growth, and increased liver glycogen. Hazards to humans include overheating, retarded growth, altered circadian rhythms, photosensitization, rash, masked jaundice and cyanosis, sepsis, green stools, and damaged macula. (22 refs.) - *C. L. Pranitch.*

Meadowbrook Hospital
East Meadow, New York 11554

173 **GORODISCHER, RAFAEL; LEVY, GERHARD; KRASNER, JOSEPH; & YAFFE, SUMNER J.** Congenital nonobstructive, nonhemolytic jaundice: Effect of phototherapy. *New England Journal of Medicine*, 282(7):375-377, 1970.

Phototherapy was used successfully to reduce serum bilirubin concentration in an infant (CA 4 mos) with congenital, nonobstructive, nonhemolytic jaundice unresponsive to phenobarbital therapy. Within 3 days of phototherapy, the S's skin

returned to normal color, and a precipitous fall in the serum bilirubin value occurred. Serum bilirubin concentrations were maintained between 6.3 and 8.3 mg/100 ml for 60 days, and the only abnormal sign on physical examination was the persistent mild scleral icterus. Discontinuation of treatment for 57 hours resulted in sudden increase in the serum bilirubin and reappearance of jaundice. When treatment was resumed, jaundice disappeared and the serum bilirubin value dropped promptly. At the time of discharge from the hospital (CA 28 wks), the S's development was considered to be normal in all respects. No abnormal neurological patterns were detected. Phototherapy can be a valuable therapeutic measure in patients with unconjugated hyperbilirubinemia who do not respond to phenobarbital. (11 refs.) - *C. L. Pranitch.*

State University of New York
Buffalo, New York 14222

174 GLUECK, HELEN I.; WILL, RUTH M.; McADAMS, A. JAMES; & GLESER, GOLDINE. Measurement of prothrombin: A neglected liver function test in infancy and childhood. *Journal of Pediatrics,* 76(6):914-922, 1970.

Based on a study in children, a correlation was indicated between prothrombin time tests and pathological diagnosis (biopsy and autopsy) of liver disease. The one-stage prothrombin method and *p*-toluenesulfonyl L-arginine methyl ester esterase prothrombin test were used. These assays correlated well with the pathological evaluation of the severity of hepatitis observed in 14 patients with moderate to severe cellular damage ($p=0.001$). The best comparisons were obtained in the case of parenchymatous cellular damage. Limitations of the prothrombin assays are noted. For example, these tests do not distinguish obstructive jaundice from that associated with mild hepatitis or infiltrative liver disease (prothrombin times may be normal in the latter conditions). (33 refs.) - *E. Kravitz.*

University of Cincinnati College of Medicine
Cincinnati, Ohio

175 FREIMAN, I.; & GEEFHUYSEN, J. Evaluation of intrathecal therapy with streptomycin and hydrocortisone in tuberculous meningitis. *Journal of Pediatrics,* 76(6):895-901, 1970.

Variable therapeutic results were obtained in a partially controlled study on 131 black children with tuberculous meningitis treated with various regimens. Patient consciousness at the start of the therapy is the most important single criterion of favorable prognosis. Group A received standard therapy (intramuscular streptomycin, 40 mg/kg/day; oral isoniazid, 20 mg/kg/day; oral para-aminosalicylic acid, 25 mg/kg/day; oral prednisone, 2 mg/kg/day). Group B received standard therapy plus intrathecal streptomycin (2 mg/kg up to 25 mg/dose). Group C received the same treatment as Group B plus intrathecal hydrocortisone (10 mg/dose up to 2 years of age; 25 mg/dose beyond 2 years of age). One dose of intrathecal therapy was given daily for 5 days, then every other day for 5 doses. Group A had 31 survivors (of 43 patients), 74% with fair-good results; Group B had 35 survivors (of 41 patients), 57% with fair-good results; Group C had 41 survivors (of 47 patients), 56% with fair-good results. Of 44 conscious patients admitted to this study, 96% lived (89% with satisfactory results); of the 87 unconscious patients, 75% lived (35% with fair-good results). The prognosis was indicated fairly accurately after 6 weeks of treatment. (13 refs.) - *E. Kravitz.*

Baragwanath Hospital
Johannesburg, South Africa

176 BEHRMAN, RICHARD E.; & FISHER, DAVID E. Phenobarbital for neonatal jaundice. *Journal of Pediatrics,* 76(6):945-948, 1970.

The treatment of jaundiced newborn with phenobarbital could not be recommended on the basis of a brief literature review. Data on treatment of the newborn are conflicting. Prenatal treatment, prophylactically via the mother, is not encouraged since the relatively low incidence of postnatal jaundice of any seriousness does not warrant the added exposure to phenobarbital-induced (or aggravated) toxic reactions. Much more needs to be known about the effects of this treatment on mortality and morbidity in premature infants,

neurobehavioral development, and biochemistry. (16 refs.) - *E. Kravitz.*

University of Illinois College of Medicine
Chicago, Illinois

177 **SMALE, LEROY E.; & WAECHTER, KENTON G.** Dissemination of coccidioidomycosis in pregnancy. *American Journal of Obstetrics and Gynecology*, 107(3):356-359; discussion, 359-361, 1970.

The dissemination rate and mortality rate of coccidioidomycosis are high in the pregnant patient. Among 15 such cases in the endemic area of the southern San Joaquin Valley in California, there were 8 deaths and 1 presumed death. Four of 9 patients treated with amphotericin survived, but 2 later died of drug induced nephrosis. In the series, there were 3 cases of placental coccidioidomycosis and one instance of fetal infection. (11 refs.) - *E. L. Rowan.*

Kern County Hospital
Bakersfield, California 93305

178 **LEE, K. H.; YEUNG, K. K.; & YEUNG, C. Y.** Neonatal jaundice in Chinese newborns. *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 77(6):561-564, 1970.

Chinese newborns are particularly prone to jaundice and 12.1% of a series of 22,122 had serum bilirubin values greater than 15 mg/100 ml. Jaundice was more frequent in summer, in first borns, and in males. In 57.1% of cases, the etiology was unknown with 15.6% ABO incompatibility, 6.9% G-6-PD deficiency, 8.9% prematurity, and 7.7% sepsis. Approximately 20% of infants delivered by vacuum extraction later developed jaundice. (15 refs.) - *E. L. Rowan.*

University of Hong Kong
Hong Kong

179 **HALITSKY, VICTOR; & *KRUMHOLZ, BURTON A.** Amniotic fluid analysis in erythroblastosis fetalis: I. The effect of oxyhemoglobin, methemalbumin, and meconium. *Journal of Obstetrics and Gynecology*, 106(8):1209-1213, 1970.

The measurement of bilirubin in amniotic fluid by a difference from normal slope in the optical density (O.D.) at 450 mμ ($\Delta O.D._{450}$) on spectrophotometric examination may be affected by other pigments. When added to amniotic fluid high in bilirubin, methemalbumin decreased both log and linear $\Delta O.D._{450}$, while meconium increased it. Oxyhemoglobin, regardless of concentration, did not change the $\Delta O.D._{450}$. Various combinations of methemalbumin, meconium, and oxyhemoglobin apparently account for the Soret peak between 415 and 403 mμ. The amniotic fluid was obtained from a severely Rh-sensitized patient. (13 refs.) - *E. L. Rowan.*

*Syosset Hospital
Syosset, New York 11791

180 **HALITSKY, VICTOR; & *KRUMHOLZ, BURTON A.** Amniotic fluid analysis in erythroblastosis fetalis: II. Quantitative relationships. *American Journal of Obstetrics and Gynecology*, 106(8):1214-1217, 1970.

The concentration of bilirubin in amniotic fluid may be determined by the difference from normal slope of the optical density (O.D.) at 450 mμ ($\Delta O.D._{450}$) on spectrophotometric examination. Known amounts of protein bilirubin in bovine albumin were examined, and the log $\Delta O.D._{450}$ was found to represent a fixed proportion of the actual bilirubin concentration. The actual bilirubin concentration may be determined by multiplying the log $\Delta O.D._{450}$ by the correction factor 1.47. (14 refs.) - *E. L. Rowan.*

*Syosset Hospital
Syosset, New York 11791

181 **HALITSKY, VICTOR; & *KRUMHOLZ, BURTON A.** Amniotic fluid analysis in erythroblastosis fetalis: III. The chloroform extract and its relationship to the log $\Delta O.D._{450}$. *American Journal of Obstetrics and Gynecology*, 106(8):1218-1221, 1970.

Extraction with chloroform serves to remove other pigments and enables the concentration of bilirubin in amniotic fluid to be determined by the difference from normal slope of the optical density (O.D.) at 450 mμ ($\Delta O.D._{450}$) on spectro-

photometric examination. The log $\Delta O.D._{450}$ of amniotic fluid may be determined by a single reading on the chloroform extract, and the actual bilirubin concentration is determined by multiplying this by a correction factor of 1.27 to account for protein binding. (6 refs.) - *E. L. Rowan.*

*Syosset Hospital
Syosset, New York. 11791

182 **KOPROWSKI, HILARY; BARBANTI-BRODANO, GIUSEPPE; & KATZ, MICHAEL.** Interaction between Papova-like virus and paramyxovirus in human brain cells: A hypothesis. *Nature*, 225(5237):1045-1047, 1970. (Letter)

The interaction of Papova-like virus and paramyxovirus, related to the measles-rinderpest virus group, in human brain cells may be responsible for neurological diseases such as subacute sclerosing panencephalitis (SSPE) and progressive multifocal leukoencephalopathy (PML), although either virus acting alone may be incapable of causing the encephalitis. In 3 cases of SSPE where particles resembling paramyxovirus nucleocapsids were detected in brain culture cells by electron microscopy, Papova-like virions were detected in only 1 instance; however, they were observed in African Green Monkey Kidney (AGMK) cells infected by paramyxovirus isolated from the other 2 cultures, indicating that undetected intracellular particles of the paramyxovirus must have been present in the latter 2 cultures. The possible role of Papova-like virus in the pathogenesis of chronic encephalopathies is further emphasized by the observation that ferrets injected with viable AGMK cells containing both the paramyxovirus and the Papova-like agent developed encephalitis although neither the cell-free extracts nor cells containing measles virus alone had any effect. Although a biologically active Papova-like agent has not been isolated from PML cases, Papova-like particles are found in abundance in brain tissue of these cases, and a paramyxovirus which invades the tissue of susceptible Ss (Hodgkin's disease, leukemia, neoplasms) may activate the Papova-like virus. The hyperplasia of astrocytes observed in cases of SSPE and PML is similar to a neoplastic process, suggesting the possibility that the interaction of these 2 viruses may be involved in the mechanism of neoplasia. (10 refs.) - *M. S. Fish.*

Wistar Institute of Anatomy and Biology
36th and Spruce Streets
Philadelphia, Pennsylvania 19104

183 **BOWES, WATSON A., JR.** Obstetrical medication and infant outcome: A review of the literature. In: Bowes, Watson A., Jr.; Brackbill, Yvonne; Conway, Esther; & Steinschneider, Alfred. The effects of obstetrical medication on fetus and infant. *Monographs of the Society for Research in Child Development*, Serial No. 137. Chicago, Illinois, University of Chicago Press, 1970, Volume 35, No.4, p. 3-23.

Although the mother is usually taking 1 or more drugs during the course of her pregnancy, little is known about the effects on the fetus of these drugs and their metabolites which can be both qualitatively and quantitatively different from the effects on the mother. Besides a simple pharmacological effect, the intrauterine environment can be changed through alteration of maternal physiology. The placental barrier protects the fetus to some degree, and in the newborn, narcosis caused by anesthetics and analgesics appears to be transient and has few long-term effects. Of particular concern may be drug usage during the first trimester when the danger of drug-induced teratogenesis is greatest; however, available evidence has directly incriminated only a few such agents. Unfortunately, tests in animals have not always provided adequate screening for teratogenic materials. In general, the fetus appears to have fared quite well considering the number and variety of drugs to which it has been inadvertently subjected during maternal therapy. (221 refs.) - *M. S. Fish.*

184 **CONWAY, ESTHER; & BRACKBILL, YVONNE.** Delivery medication and infant outcome: An empirical study. In: Bowes, Watson A., Jr.; Brackbill, Yvonne; Conway, Esther; & Steinschneider, Alfred. The effects of obstetrical medication on fetus and infant. *Monographs of the Society for Research in Child Development*, Serial No.

137. Chicago, Illinois, University of Chicago Press, 1970, Volume 35, No. 4, p. 24-34.

Obstetrical anesthesia and analgesia appear to have a significant effect on muscular, visual, and neural development in the infant up to 4 weeks of age. The Ss were 23 clinically normal infants delivered of 23 mothers, median age 23. Deliveries were uncomplicated for 21; cesarean section was performed for 2. Birth weights and gestational ages were 5 pounds 1 ounce to 9 pounds 3.5 ounces and 38 to 42 weeks, respectively. Of the 17 Ss available for complete follow-up, the Graham scale (muscle tension, vision, and maturation) and orienting reflex to an auditory stimulus at 2 and 5 days and the Bayley scales (psychomotor and mental development) at 4 weeks showed that potency of medication (classified as local, general, or no anesthetic) had a significant effect on performance at all 3 test periods. Muscle tension and orientation were affected at 2 and 5 days, vision at 5 days, and motor development at 4 weeks. No significant differences were noted in Apgar ratings at 1 and 5 minutes. Maternal parity, age, length of labor, and parental socioeconomic and educational levels did not appear to have any effects. Additional tests at 20 weeks on 15 Ss indicated that these effects may have disappeared; however, the sample size was too small to permit the formation of a definite conclusion. (21 refs.) - *M. S. Fish.*

185 **STEINSCHNEIDER, ALFRED.** Obstetrical medication and infant outcome: Some summary considerations. In: Bowes, Watson A., Jr.; Brackbill, Yvonne; Conway, Esther; & Steinschneider, Alfred. The effects of obstetrical medication on fetus and infant. *Monographs of the Society for Research in Child Development*, Serial No. 137. Chicago Press, 1970, Volume 35, No. 4, p. 35-37.

The study of the influence of maternal drugs on infants is a complicated area of investigation which has received far too little attention in the past. Almost all fetuses are exposed to drugs, including those administered during gestation and labor. While most drugs are given for the purpose of maintaining the health of the mother or the relief of pain, an increasing tendency in the future may be to prescribe drugs for a primary effect on the fetus; for example, to induce enzyme activity in order that the newborn can conjugate bilirubin. Past investigations of drug effects on infants have centered mainly on standard pediatric or neurological examinations. When more imaginative test procedures are used, longitudinal studies of long-term effects may reveal that effects of maternally administered drugs on the CNS of the infant have more far-reaching implications for overall development of infant behavior than has been previously demonstrated. (9 refs.) - *M. S. Fish.*

186 **EDWARDS, V. E.; SUTHERLAND, J. M.; & TYRER, J. H.** Cryptococcosis of the central nervous system: Epidemiological, clinical, and therapeutic features. *Journal of Neurology, Neurosurgery, and Psychiatry*, 33(4):415-425, 1970.

The 9-year rate of cryptococcal infections of the central nervous system in Queensland, Australia, is 17 times greater in the Australian aboriginal than in the white population. Of a group of 29 patients (20 males and 9 females) who were diagnosed with the infection, 23 (79.3%) developed the disease between the ages of 20 and 59 years; 5 were from aboriginal descent compared with 24 from European extraction. This incidence, based on mean population, represents 25.9 and 1.5 per 100,000, respectively. Twenty of the patients had outdoor occupations, suggesting that high exposure to the fungus may be associated with dry, dusty weather and with an animal reservoir. These latter factors, along with observed geographic differences, indicate that the high incidence among aborigines may not be entirely racial in origin. The outstanding symptom is headache, and fever, or evidence of meningeal reaction which can lead to occult hydrocephalus, are often present. In 5 cases *C. neoformans* was found in the cerebrospinal fluid. The disease, once invariably fatal, can be successfully eradicated in about 80% of the cases by the intravenous or intrathecal administration of amphotericin. (42 refs.) - *M. S. Fish.*

Royal Brisbane Hospital
Brisbane, Australia

187 **SCHUTTA, HENRY S.; JOHNSON, LOIS; & NEVILLE, H. E.** Mitochondrial abnormalities in bilirubin encephalopathy.

Journal of Neuropathology and Experimental Neurology, 29(2):296-305, 1970.

The principal effects on neurons of rats with experimental bilirubin encephalopathy appear to be damage to the mitochondria by enlargement and filling with glycogen-like granules. Brains of 28 jaundiced Gunn rats, aged 2-40 days, and their heterozygous littermates were fixed, stained, and examined electron microscopically. Study of Purkinje cells, colliculi, cerebellar nuclei, cerebral cortex, the hippocampus, and basal ganglia disclosed the presence in these various tissues of the abnormal mitochondria in animals over 8 days of age. The findings suggest that the principal *in vivo* damage by bilirubin appears to be initially of neuronal mitochondria and confirm other reports that uncoupling of oxidative phosphorylation may not be the decisive *in vivo* biochemical event in this encephalopathy but, rather, may result from the initial mitochondrial damage. (20 refs.) - *M. S. Fish.*

University of Pennsylvania School of Medicine
Philadelphia, Pennsylvania 19107

188 **RAINE, CEDRIC S.; & BORNSTEIN, MURRAY B.** Experimental allergic encephalomyelitis: An ultrastructural study of experimental demyelination in vitro. *Journal of Neuropathology and Experimental Neurology*, 29(2):177-191, 1970.

Ultrastructural features of *in vitro* patterns of demyelination caused by sera from animals suffering from experimental allergic encephalomyelitis (EAE) include rapid demyelination after exposure and degeneration which proceeds either by interlamellar swelling with formation of large vacuoles around denuded axons or by smudging and dissociation of the myelin from the unaffected axon. Fifteen-minute serial light and electron microscopic studies of neonatal rat and mouse spinal cord exposed to the demyelinating action of 25% rabbit EAE serum showed that myelin changes began within 15 minutes of exposure and that demyelination was complete by 6 hours. Oligodendroglia (cells responsible for myelination) appeared selectively damaged. Although previous ultrastructural *in vivo* work on EAE has shown demyelination to be associated predominantly with invading hematogeneous cells, the present study suggests that a cell-mediated effect may not be necessary for demyelination. (27 refs.) - *M. S. Fish.*

Albert Einstein College of Medicine
Bronx, New York 10461

189 **LEHRICH, JAMES R.; KATZ, MICHAEL; RORKE, LUCY BALIAN; BARBANTI-BRODANO, GIUSEPPE; & KOPROWSKI, HILARY.** Subacute sclerosing panencephalitis: Encephalitis in hamsters produced by viral agents isolated from human brain cells. *Archives of Neurology*, 23(2):97-102, 1970.

Cultured cells derived from brains of patients with subacute sclerosing panencephalitis (SSPE), when inoculated intracerebrally into hamsters, produce clinical and histological signs of encephalitis and provide a useful *in vivo* system for the study of the viral agents. Brain cell cultures of 2 SSPE patients were propagated in and isolated from African Green Monkey Kidney (AGMK) and CV-1 cells. One strain each of attenuated (Edmonston) and wild (Woodfalk) measles virus was maintained on CV-1 cell cultures for comparative studies. Inoculation of separate groups of 24- to 72-hour-old Syrian hamsters through the skull into the left cerebral hemisphere with the propagated viruses and with the suspensions of the infected brain cells produced clinical signs of the disease and death in 9-18 days for a majority of the animals given the 2 SSPE virus preparations and the cells from one of the patients. Cells from the other patient had no effect, and of the animals given the 2 strains of measles virus, only 1 was affected (by the wild strain). Brain homogenates from ill hamsters produced symptoms when inoculated into both suckling hamsters and into ferrets. Histological lesions of encephalitis were found only in the clinically ill hamsters who died 14 or more days after inoculation. Re-isolation of viral agents from the brains of sick hamsters afforded agents resembling those of the original inoculum in immunological and ultrastructural characteristics. (14 refs.) - *M. S. Fish.*

Wistar Institute
Philadelphia, Pennsylvania 19104

190 **SAUER, R. M.; ZOOK, B. C.; & GARNER, F. M.** Demyelinating encephalomyelopathy

associated with lead poisoning in nonhuman primates. *Science*, 169(3950):1091-1093, 1970.

Central nervous system (CNS) lesions delineated in 4 nonhuman primates dead from accidental lead poisoning suggest a new animal model for demyelination studies and confirm a belief that lead is a factor in certain idiopathic demyelinating diseases. In 3 primates, the clinical evidence of lead encephalomyelopathy was chiefly amaurosis and epilepsy; CNS lesions (vascular changes, edema, laminar necrosis, and demyelination) were markedly like those in children with lead encephalopathy. The fourth animal differed in that it presented sudden paraplegia rather than epilepsy; its minimal vascular lesions and extensive bilateral symmetrical demyelination were comparable with those in nonhuman idiopathic leukoencephalomyelosis. (11 refs.) - *B. Berman.*

National Zoological Park
Washington, D.C. 20009

191 **WOOD, B. S. B.** Bilirubin diffusibility and brain damage. *Developmental Medicine and Child Neurology*, 12(4):512-513, 1970.

Recent evidence throws doubt on serum bilirubin as a reliable indicator of kernicterus since the latter occurs at rather low levels in short-gestation babies. In addition, there appears to be no significant IQ drop at bilirubin levels below that at which kernicterus is known to occur. Nonhemolytic jaundice shows no association between neonatal bilirubin levels and later IQ; the question is still open in hemolytic jaundice, although a study has shown decreased visual perceptual motor integrations keyed to the severity of this disease. No correlation between neonatal bilirubin levels and IQ was found in 32 jaundiced children examined at birth and re-examined at ages 4-7 years. In respect to the more subtle effects of brain damage, however, 18 cases showed abnormal psychometric performance, and although brain damage was not correlated with bilirubin levels, it was strongly correlated with a high saturation index of the proteins with bilirubin. A fairly diffuse central nervous system lesion in kernicterus may impair memory, perceptual, and motor behavior. Jaundiced infants must be followed until ages 5-6 years when the complex tests can be applied and evaluations of bilirubin diffusibility can be obtained. (15 refs.) - *B. Berman.*

Children's Hospital
Birmingham 16, England

192 Studies of the effect of immunoglobulin on rubella in pregnancy: Report of the Public Health Laboratory Service Working Party on Rubella. *British Medical Journal*, 2(5708):497-500, 1970.

Immunization of 5,447 pregnant women with varying amounts of immunoglobulin (antibody content ranged from 750 to more than 1500 mg; second doses were given to a few) following contact with a clinically diagnosed rubella case showed that immunoglobulin provides no appreciable protection against rubella. This conclusion was supported by observations of 652 women also exposed but not given immunoglobulin since they were not pregnant. In both groups, preinoculation blood samples revealed susceptibility in about 15% of cases, and for these, an index case in their households was the chief factor in developing rubella. Since it was important in studying the effects of immunoglobulin to have some treated susceptible pregnant Ss who had contacted an index case of rubella, nasal and throat swabs were obtained from examined index cases. It seems clear that prophylactic use of immunoglobulin against maternal rubella is largely unsound and, consequently, cannot be expected to protect against fetal abnormality. Active immunization before pregnancy for susceptible women is the better procedure. (8 refs.) - *B. Berman.*

Central Public Health Laboratory
Colindale, London, England

193 **PHILLIPS, PAUL E.; & CHRISTIAN, CHARLES L.** Myxovirus antibody increases in human connective-tissue disease. *Science*, 168(3934):982-984, 1970.

Serum studies in patients with connective-tissue diseases (to determine possible viral agents that stimulate the abnormal immunologic processes) showed significant increases of antibodies to measles and parainfluenza type I viruses in systemic lupus erythematosus (SLE) and Reiter's

syndrome. Measles and parainfluenza antibodies were measured by hemagglutination inhibition, and all serums were tested against control antigens produced from uninfected tissue cultures of the same kind used to produce the viral antigens. The geometric mean titer of the SLE group was markedly higher than that of all other groups except those with Reiter's syndrome: other groups were normal. Possible explanations for the antibody increases in these 2 diseases include a persistent virus infection, a nonspecific result of immunologic hyperreactivity, or a result of antigens shared by host cell and virus. These findings suggest persistent virus infection may be pathogenetic in these diseases. (31 refs.) - *B. Berman.*

Columbia University
College of Physicians and Surgeons
New York, New York 10032

194 **KOUTSOULIERIS, E.; & KASLARIS, E.** Congenital tuberculosis. *Archives of Disease in Childhood,* 45(242):584-586, 1970.

A female baby is the seventh reported case of congenital tuberculosis successfully treated and surviving without apparent sequelae. Diagnosed by liver biopsy, the child had developed fever and abdominal distention at 40 days of age, showed hepatosplenomegaly, and was first diagnosed with liver cirrhosis. Initial treatment after diagnosis was with isoniazid and streptomycin, but when her condition deteriorated (tachnypnoea and grunting respiration), PAS and prednisone were added; she gradually improved and was discharged in 5 weeks. The mother, maternal grandfather, and uncle showed a history of tuberculosis; all family members lived in the same house. The evidence in this case (the tuberculous nature of the liver lesions having been demonstrated histologically and bacteriologically) pointed to congenital tuberculosis. (6 refs.) - *B. Berman.*

Aghia Sophia Children's Hospital
Athens, Greece

195 **SCHLEGEL, ROBERT J.; BERNIER, GEORGE M.; BELLANTI, JOSEPH A.; MAYBEE, DAVID A.; OSBORNE, GEORGE B.; STEWART, JAMES L.; PEARLMAN, DAVID S.; OUELETTE, JOHN; & BIEHUSEN, FREDERICK C.** Severe candidiasis associated with thymic dysplasia, IgA deficiency and plasma antilymphocyte effects. *Pediatrics,* 45(6):926-936, 1970.

A physically and mentally retarded 9-year-old boy with severe, chronic mucocutaneous candidiasis and chronic pulmonary disease died as a result of treatment complications. Immunologic studies revealed thymic and lymphatic tissue dysplasia, absent IgA, antibovida antibodies, various plasma-mediated antilymphocyte effects, and defective cellular and humoral immunity. This constellation of findings represents a distinct immunological entity. (43 refs.) - *E. L. Rowan.*

Stanford University School of Medicine
Palo Alto, California 94305

196 **ACKERMAN, BRUCE D.; DYER, GERALDINE Y.; & LEYDORF, MARY M.** Hyperbilirubinemia and kernicterus in small premature infants. *Pediatrics,* 45(6):918-925, 1970.

Seven of 54 infants who weighed less than 1500 grams at birth had serum bilirubin levels greater than 15 mg/100 ml. The 4 fatal cases and 1 of the 3 survivors had confirmed or suspected kernicterus. Skin hemorrhage and acidosis were common in this group. The commonly accepted bilirubin level of 20 mg/100 ml as a criterion for exchange transfusion is not realistic in the small, premature critically-ill infant. Such infants might be exchanged sooner or routinely treated with phototherapy in order to prevent hyperbilirubinemia. (33 refs.) - *E. L. Rowan.*

College of Medicine, University of California
Irvine, California 92664

197 **GARTNER, LAWRENCE M.; SNYDER, RICHARD N.; CHABON, ROBERT S.; & BERNSTEIN, JAY.** Kernicterus: High incidence in premature infants with low serum bilirubin concentrations. *Pediatrics,* 45(6):906-917, 1970.

Nine of the 14 autopsied infants who died between the third and sixth days of life in a pediatric intensive care unit were found to have kernicterus despite the absence of clinical jaundice or high serum bilirubin. The range of peak serum

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bilirubin was from 9.4 to 15.6 mg/100 ml in this group. When compared with 5 infants without kernicterus, the group showed a higher incidence of gestational period less than 30 weeks, a lower mean birth weight, a greater incidence of respiratory distress, and a higher incidence of intracranial hemorrhage. Only one infant had neurological abnormalities. The complex interaction of anoxia, acidosis, and protein binding in the etiology of bilirubin encephalopathy in the low-birth-weight infant needs further elucidation. (33 refs.) - *E. L. Rowan.*

Albert Einstein College of Medicine
1500 Morris Park Ave.
Bronx, New York 10461

198 **FARQUHAR, JOHN D.** Results with the Cendehill rubella vaccine in postpartum women. *Obstetrics and Gynecology*, 35(6):841-843, 1970.

A group of 115 rubella-sensitive women was administered the Cendehill strain of rubella virus vaccine in the postpartum period. All agreed to use effective methods of birth control for 2 months and signed informed consent forms. Seroconversion to a hemagglutination-inhibition antibody response (geometric mean titer 1:60) occurred in 98%. Side effects were mild, and transient and mild arthralgia was noted by only 4% as compared with a 40-50% incidence of arthralgia with HPV-77 vaccine. (11 refs.) - *E. L. Rowan.*

Presbyterian University
of Pennsylvania Medical Center
Philadelphia, Pennsylvania 19104

199 **HOBEL, CALVIN J.** The value of fetal scalp blood hemoglobin determination in Rh erythroblastosis fetalis. *Journal of Pediatrics*, 77(3):460-462, 1970.

The hemoglobin values of scalp blood samples from 18 Rh-sensitized infants correlated closely with umbilical vein blood samples taken after birth. A previous knowledge of the degree of anemia and acidosis will enable the physician to manage these infants aggressively immediately after birth. (9 refs.) - *E. L. Rowan.*

1000 West Carson Street
Torrance, California 90509

200 **SCHIFF, DAVID; ARANDA, JACOB V.; & STERN, LEO.** Neonatal thrombocytopenia and congenital malformations associated with administration of tolbutamide to the mother. *Journal of Pediatrics*, 77(3):457-458, 1970.

A diabetic woman treated with tolbutamide throughout pregnancy gave birth to an infant with thrombocytopenia and minor structural abnormalities. The significant thrombocytopenia improved spontaneously by 11 days of age. A preauricular skin tag, accessory right thumb, and torsion of the left testicle were the only abnormalities noted. Transplacental passage of drug is suggested by a tolbutamide blood level in this neonate in excess of the usual therapeutic range for adults. (10 refs.) - *E. L. Rowan.*

Montreal Children's Hospital
Montreal 108, Quebec, Canada

201 **KATTAMIS, C. A.; & TJORTJATOU, F.** The hemolytic process of viral hepatitis in children with normal or deficient glucose-6-phosphate dehydrogenase activity. *Journal of Pediatrics*, 77(3):422-430, 1970.

One hundred twenty-five children with viral hepatitis were examined for the presence of the Mediterranean variant of glucose-6-phosphate dehydrogenase deficiency (G-6-PD) and β-thalassemia. Hemolysis as determined by drop in hemoglobin and increase in reticulocyte count was significantly higher in children with these red cell defects. Only 23% of the 24 nondeficient Ss showed hemolysis, while 87% of the 14 with G-6-PD deficiency and 80% of the 5 with heterozygotic β-thalassemia showed hemolysis. Hyperbilirubinemia was not closely correlated with hemolysis but tended to be greater in Ss with erythrocyte defects. These defects do appear to induce hemolysis during the course of hepatitis, possibly as a result of reduced glutathione. (15 refs.) - *E. L. Rowan.*

University of Athens
Athens 608, Greece

202 **EMBIL, J. A.; OZERE, R. L.; & HALDANE, E. V.** Congenital cytomegalovirus infection in two siblings from consecutive pregnancies. *Journal of Pediatrics*, 77(3):417-421, 1970.

Two sisters born 9 months apart showed evidence of congenital cytomegalovirus infection. The first was hypotonic and cyanotic at birth and gradually deteriorated until death at 30 days of age. Cytomegalovirus was isolated from urine and several tissue samples at autopsy. The second child also had respiratory distress at birth and subsequent problems with acidosis and diarrhea but was developing normally at 14 months of age despite persistent cytomegaloviruria. The mother had a relatively low cytomegalovirus complement-fixing antibody titer (1:16) through both pregnancies and is probably a chronic carrier. A woman who has previously borne a child with cytomegalovirus infection should be followed carefully through subsequent pregnancies. (12 refs.) - *E. L. Rowan.*

Dalhousie University
Halifax, Nova Scotia, Canada

203 **STLBERBERG, DONALD H.; JOHNSON, LOIS; & RITTER, LINDA.** Factors influencing toxicity of bilirubin in cerebellum tissue culture. *Journal of Pediatrics*, 77(3):386-396, 1970.

Changes in the pH and bilirubin-albumin ratio had profound effects on the damage caused by unbound-unconjugated bilirubin in a tissue culture of rat cerebellum. By monitoring changes observed on light-microscopy, it was found that with constant bilirubin-albumin ratio, a decrease in pH (more acidotic) resulted in greater cytotoxicity. At pH less than 7.6, an increase in the bilirubin to albumin ratio (less binding) resulted in greater damage. Above pH 7.6, bilirubin in high concentrations was not toxic. Regional variations in metabolism may explain the selective sites of bilirubin concentration (kernicterus) *in vivo*. (31 refs.) - *E. L. Rowan.*

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Philadelphia, Pennsylvania 19104

MEDICAL ASPECTS – Etiologic Groupings

Trauma or physical agents

204 Allergies may lead to minimal brain dysfunction in children. *Journal of the American Medical Association*, 212(1):33-34, 1970.

A pilot study with 20 children (ages 6-7 years, all with abnormal EEGs, positive skin reactions to inhalants, and varying histories of food allergies—chiefly milk) and a larger, still-ongoing study support the view that apparent minimal brain dysfunction in many children may be caused by food allergy. The syndrome (irritability, sluggishness, unpredictable behavior, periorbital puffiness, pallor, edematous nasal mucosa, and abnormal EEGs) was noticeably ameliorated by dietary restrictions (milk and/or wheat) and inhalant elimination. Initial intelligence testing showed all Ss in the normal intelligence range but 7 with profound learning problems; retesting 6 months after initiation of inhalant avoidance and dietary restrictions showed considerable upward change in scores for all but the 7 with learning problems. (No refs.) - *B Berman.*

205 **HYAMS, S. W.; & JAFFE, M.** Cerebral palsy and juvenile glaucoma in siblings, *Developmental Medicine and Child Neurology*, 12(4):467-471, 1970.

Two sisters display a similar syndrome of the spastic diplegic form of cerebral palsy, MR, microcephaly, and juvenile glaucoma. The fact that the parents are second cousins suggests an autosomal recessive mode of inheritance. (25 refs.) - *E. L. Rowan.*

Rothschild Government - Municipal Hospital
Haifa, Israel

206 Diazepam in spasticity. *Lancet*, 1(7657):1161-1162, 1970. (Editorial)

Diazepam appears to be the most effective remedy available for spasticity. More effective intramuscularly than orally, it gave improvement in 10 cases of hemiplegia, 21 cases of spastic paraplegia, and 29 cases of spastic limb weakness. An intramuscular 15mg dose provided prompt relief, with few side effects; larger doses were needed, if taken orally. Diazepam effects seem due, in part, to its spinal-cord action independent of its other effects at supraspinal levels of the neuraxis. (9 refs.) - *B. Berman.*

207 Hyaline treatment breaks the cost barrier. *Medical World News*, 11(15):4-5, 1970.

To identify an effective therapy for hyaline membrane disease, a clinical research program, which floundered because fibrinolysin was difficult to produce and expensive, will begin again soon. New experiments will use fibrinolysin in which human plasminogen has been activated with streptokinase. In a randomized double-blind study of 60 infants who developed hyaline membrane disease shortly after birth, fibrinolysin was administered to 32 infants; 18 Ss served as controls. Survival rate was 72% for treated infants and 39% for controls. Of 16 treated infants and 16 controls with birth weights below 2 kg, 10 treated infants and 3 controls survived. (No refs.) - *J. K. Wyatt.*

208 Minimal brain dysfunction: The 3 million 'other children.' *Medical World News*, 11(21):30-36, 1970.

The main cause of minimal brain dysfunction seems to be malfunctioning of an area of the brain. The damage is generally subtle and is not evident on an EEG. Children with minimal brain dysfunction present subtle academic and emotional problems which frequently lead to misdiagnoses of MR and/or a primary psychiatric problem. Diagnosis should include a complete medical and neurological examination, an EEG, and evaluations of psychologic, psychiatric, and communication functions. Neurological diagnosis must depend on soft signs. Treatment should involve special education, individual and family psychiatric therapy for selected cases, and the use of amphetamines or tranquilizers. (No refs.) - *J. K. Wyatt.*

209 Neonates' lung disease: Prognosis improved. *Medical World News*, 11(19):221, 1970.

Hyaline membrane disease does not always affect neurological and mental development in unfavorable ways. A control group of 24 premature children with birth weight of 2,500 gm or less who had survived hyaline membrane diseases was compared with 53 premature children with similar birth weights who had respiratory distress syndrome (RDS). Thirteen of the RDS children and 10 of the control children had birth weights below 2,100 gm. Among these lower birth weight Ss, 8 RDS Ss were smaller than the smallest control group S. Incidence of maternal bleeding complications and immature gestational age was greater for the RDS low birth weight group than for the control group. RDS low birth weight Ss had an average IQ of 95 and clear lung fields, and 6 were normal. In the low birth weight control group, average IQ was 94, and there was one case of congenital heart disease and various other defects; half were normal. Of 11 children in an RDS group with birth weight between 2,100 and 2,500 gm, 6 were normal and had an average IQ of 100. Among 43 control Ss in a similar birth weight group, 27 were normal and had an average IQ of 105. Birth weight made a significant difference in the development of these children. Disability scores were nearly 5 times greater for lower birth weight and nearly 4 times greater for the lower birthweight RDS group. (No refs.) - *J. K. Wyatt.*

210 JOHNSON, CARL E. Breech presentation at term. *American Journal of Obstetrics and Gynecology*, 106(6):865-871, 1970.

In an analysis of 500 cases of breech delivery, there were 48 cases of fetal injury. Among these were 21 cases of torticollis, 10 cases of hip dislocation, 7 cases of central nervous system injury or hemorrhage, 5 cases of fractured clavicle, 3 cases of Erb's paralysis, and 2 cases of MR. The incidence of fetal morbidity and mortality (8 cases) with breech delivery was greater than that with vertex delivery. In 26% of the primaparas and 42% of the multiparas, breech presentation was not diagnosed until labor or delivery. Although the highest rate of fetal injury was for extraction deliveries (25%), no method of vaginal breech delivery was free of fetal injury. The hazard of breech delivery would be considerably reduced if cesarean section was used to avoid traumatic

vaginal delivery in patients with dysfunctional labor or with suspected fetal disproportion. These data confirm the hazard of unpredictable cord prolapse and indicate that total extraction delivery should only be used in an emergency during the second stage of labor and should not be used as an elective procedure. (18 refs.) - *J. K. Wyatt.*

Mayo Clinic
Rochester, Minnesota 55901

211 **ROBINSON, NORMAN.** Glucose ^{14}C metabolism in rabbit hereditary ataxia. *Archives of Neurology*, 22(5):445-449, 1970.

Examination of the breakdown of glucose tagged with radioactive carbon (^{14}C) and protein incorporation of its amino-acid metabolites in ataxic rabbits showed that the brain used more amino acids for protein synthesis than the other organs examined. Rabbits with hereditary ataxia were observed immediately after disease signs were identified. Since the radioactive proteins in the animal organs were like those in normal animals, protein synthesis was apparently normal. It was less than normal, though, in the affected brain area (the microsomal and soluble subcellular components of the brain stem and cerebellum), where a specific protein type was either failing to synthesize properly or had an abnormal turnover rate. In 3 control animals, the freely soluble glucose ^{14}C showed up in glutamic and aspartic acids, alanine, and glutamine. In the ataxic animals, labeled glutamic acid and its amide were below normal in the affected brain areas. This probably disturbed two processes influencing cerebral excitation: conversion of glutamic acids to keto acids for energy requirements and decarboxylation to γ-amino butyric acid or in transport of potassium. (10 refs.) - *B. Berman.*

London Hospital Medical College
London, England

212 **WEINBERG SIDNEY B.; & PURDY, BARBARA A.** Postmortem leucocyte culture studies in sudden infant death. *Nature*, 226(5252):1264-1265, 1970. (Letter)

The high proportion of chromosomal abnormalities observed in a group of sudden infant death (SID) cases supports the possibility of a viral etiology of SID since these aberrations have been previously linked to viral infections. Post-mortem examination of specimens from 17 infants, ages 1 to 8 months, suspected of dying from SID and from 7 control cases (death due to established causes) revealed no unusual findings. Cytogenetic studies of cultured leukocytes obtained from blood samples of the SID cases and from live control Ss and post-mortem controls showed abnormal karyotypes in controls only in cases with obvious genetic defects. Of the 17 experimental samples, 3 cultures failed, 3 were of poor quality, and 1 had a normal karyotype. The 10 abnormal patterns had either deletions, chromatid breaks, or abnormal chromosomal association and telemeric association. The aberrations occurred randomly, and the incidence ranged from 40-80% of the total cells examined. Dermatoglyphic examination revealed simian lines in 5 (29%) of the SID cases compared with an expected rate of 3% in the normal population. (13 refs.) - *M. S. Fish.*

Suffolk County Office Building
Hauppauge, New York 11788

213 **LAITINEN, L. V.** Neurosurgery in cerebral palsy. *Journal of Neurology, Neurosurgery and Psychiatry*, 33(4):513-518, 1970.

Stereotaxic subthalamotomy has produced good results in the majority of a group of cerebral palsy (CP) patients undergoing the operation. Of a group of 55 Ss with CP, 65% experienced improvement in speech, gait, and alleviation of rigidospasticity in the distal muscles. All Ss in the improved group had normal intelligence; MR Ss did not benefit. Results were poor in 20% and uncertain in 15% of the cases. No mortality occurred. Transitory side-effects occurred in 20% of the cases. Of a group of 39 cases examined on follow-up, clinical findings were confirmed: 72% of the patients was better, 24% was unchanged, and 4% was worse after surgery. Improved motor ability was the most common feature; one-half of the Ss had less involuntary movements after surgery. Treatment of Ss became easier, and speech difficulties improved in 29% but were impaired in 10% after surgery. Spinal longitudinal myelotomy relieved

the spasticity in the lower limbs of 3 patients undergoing that operation. (18 refs.) - *M. S. Fish.*

University Central Hospital
Helsinki, Finland

214 **BOUGHTON, K.; GANDY, GILLIAN; & GAIRDNER, DOUGLAS.** Hylaine membrane disease: II. Lung lecithin. *Archives of Disease in Childhood*, 45(241):311-320, 1970.

Lung-lecithin content (and its surface-tension characteristics) as measured in 95 infants (61 neonatal deaths, 34 stillborn) may be a measure of surfactant reserve, since it correlated negatively with minimal lung-extract surface tension; in hyaline-membrane disease (HMD) cases, it was in the lower ranges (1.5 to 18.6% of dry lung tissue). Normal lung surfactant appeared, after 29 weeks' gestation, in Ss without hyaline membranes. Well-formed membranes appeared only in Ss surviving for at least 3 hours. The immediate cause of HMD is considered to be the interstitial pulmonary edema resulting from surfactant deficiency. Except in very immature infants, this deficiency occurs after birth and results from the rapid initial utilization of surfactant to form the alveolar surface lining. Hyaline membranes occur with normal surfactant when HMD cases survive several days and the lungs are in repair, when there is massive lung hemorrhage associated with severe hemolytic anemia or with heart failure, and when the mothers are diabetic. (23 refs.) - *B. Berman.*

Cambridge Maternity Hospital
Cambridge, England

215 **GANDY, GILLIAN; JACOBSON, W.; & GAIRDNER, DOUGLAS.** Hyaline membrane disease: I. Cellular changes. *Archives of Disease in Childhood*, 45(241):289-310, 1970.

Studies of lung-tissue changes in 84 infants, 44 with hyaline membrane disease (HMD), immediately after death (16 being stillborn) showed that low pulmonary blood flow is not the primary cause of injury to alveolar epithelium and of surfactant deficiency, and that asphyxia merely contributes to the pathogenesis of HMD. In 69 cases, osmiophilic granules (which appeared at 20 weeks' gestation in 2 out of 6 fetuses and in all but HMD infants after 24 weeks) were associated with surface tension; normal surfactant was reflected by the presence of many granules, suggesting that surfactant material consists of granules. Interstitial edema in necrotic areas and disquamation of alveolar epithelial cells were the initial signs of HMD, with more extensive membrane evidenced in Ss dying at a later stage. Nevertheless, some evidence of replacement on denuded surfaces appeared in almost all cases after 36 hours and half the cases showing displacement yielded normal surface-tension values. Alveolar cells in late HMD stages were thick and squamatous, with few capillaries, reflecting severe alveo-capillary block. (50 refs.) - *B. Berman.*

Strangeways Research Laboratory
Cambridge, England

216 **BARON, MICHAEL, A.; BEJAR, RAFAEL L.; & SHEAF, PETER J.** Neurologic manifestations of the battered child syndrome. *Pediatrics*, 45(6):1003-1007, 1970.

A 9-month-old girl with growth failure, developmental retardation, and increased startle reflex, muscle tone, and deep tendon reflexes was thought to have organic brain disease. However, the bilateral, symmetrical neurological findings disappeared shortly after admission, and she showed the "stair-step" pattern of catch-up growth during hospitalization. Only when external ecchymoses and non-displaced fractures were noted was battering suspected and later confirmed. (13 refs.) - *E. L. Rowan.*

Valley Forge General Hospital
Phoenixville, Pennsylvania 19450

MEDICAL ASPECTS – Etiologic Groupings

Diseases or disorders of metabolism, growth, or nutrition

217 COTTON, ROBERT B.; KEATS, THEODORE E.; & McCOY, ERNEST E. Abnormal blood glucose regulation in Cockayne's syndrome. *Pediatrics*, 46(1):54-60, 1970.

The first reported case of Cockayne's syndrome in a Negro demonstrated that the disease is readily identified by characteristic physical and radiographic features. The S (normal body proportions except for microcephaly and normal karyotype) showed abnormal blood-glucose regulation, which was consistent with a chronic insulin antagonism compensated by a higher pancreatic insulin reserve. Blood-glucose abnormalities were attributable to hypersomatotropism – growth hormone is antagonistic to insulin action, and excessive growth-hormone elaboration may occur in the syndrome. Additional blood-glucose studies are needed before definitely ascribing such abnormalities to this disease. (22 refs.) - *B. Berman.*

University of Virginia Hospital
Charlottesville, Virginia 22901

218 PITT, DAVID. Phenylketonuria with normal intelligence. Report of two cases. *Australian Journal of Mental Retardation*, 1(5):160-162, 1971.

Two cases of phenylketonuria (PKU) with normal intelligence were identified through tests of siblings who had severe PKU. One S was a 17-year-old girl who had no physical or neurological abnormalities, exhibited a high anxiety level, attended normal school until 16 years of age, and was an average student. She had ferric chloride in the urine, a serum phenylalanine level of 25 mgm/100 ml, and a serum tyrosine level of 1.0 mgm/100 ml. The other S was a 38-year-old male who had a poor academic record, although he tested at the normal intellectual level and has held several unskilled jobs. He had a harsh systolic murmur, a slight PKU odor, evidence of minor brain damage, and emotional disturbances. His serum phenylalanine level was 21 mgm/100 ml, and his serum tyrosine level was 1.3 mgm/100 ml. Differences between these 2 cases and members of their families can be explained either as extreme variations in endowed intelligence–if there is a biochemically identical disease–or by a biochemical variation (so far not detected) within the family. Variations should be identified for neonatal assessment of PKU infants. (5 refs.) - *B. Berman.*

Children's Colleges Training Centre
Kew, Victoria, Australia, 3101

219 GEISER, C. F.; BAEZ, A.; SCHINDLER, A. M.; & SHIH, V. E. Epithelial hepatoblastoma associated with congenital hemihypertrophy and cystathioninuria: Presentation of a case. *Pediatrics*, 46(1):66-73, 1970.

The fifth reported case of congenital hemihypertrophy associated with hepatoblastoma–a 13-month-old-boy (with larger lips, ear, extremities, thyroid, kidney, and testis on the left side) who presented also cystathioninuria–demonstrated by his leukocyte karyotype and skin fibroblasts that hemihypertrophy by itself does not stem from a gross chromosomal abnormality. There was a histologic relationship of hemihypertrophy to cellular hyperplasia but not to individual cell hypertrophy. Congenital body asymmetry in a child may reflect the presence of a hepatoblastoma as well as Wilms' tumor or adrenal cortical tumors. The hepatoblastoma showed a high cystathionine content, reflected in cystathioninuria, which is diagnostic in abdominal tumor in children; its presence in 7 out of 10 cases of hepatoblastoma indicates that urinary amino-acid screening is useful in ancillary diagnosis in such children. (24 refs.) - *B. Berman.*

Children's Cancer Research Foundation
Boston, Massachusetts 02115

220 SCOTT, C. RONALD; DASSELL, STEVEN W.; CLARK, SANDRA H.; CHIANG-TENG, CECILIA; & SWEDBERG, KATHRYN R. Cystathioni-

nemia: A benign genetic condition. *Journal of Pediatrics*, 76(4):571-577, 1970.

A 9-year-old boy with mild MR was found to have cystathioninemia which was first detected on urine chromatography; however, two siblings were also found to be homozygous for cystathioninemia and showed neither physical nor mental abnormalities. Cystathionine excretion dropped to undetectable levels on vitamin B_6 administration confirming the genetic mutation of vitamin B_6 dependent cystathioninemia previously described in the literature. Nine index cases and 5 nonindex cases have now been reported. Six of the 9 index cases showed physical defects, and 7 had mental aberrations whereas none of the nonindex cases showed either. This suggests that cystathioninemia is probably benign and that the high rates of associated MR and physical defects were due to selection bias. (18 refs.) - *E. L. Rowan.*

University of Washington
Seattle, Washington 98105

221 **DE LEVIE, MELVIN; & NOGRADY, M. BERNADETTE.** Rapid brain growth upon restoration of adequate nutrition causing false radiologic evidence of increased intracranial pressure. *Journal of Pediatrics*, 76(4):523-528, 1970.

After adequate nutrition had been restored, 5 malnourished young children showed an increase in head circumference and a separation of cranial sutures in addition to an increase in height and weight. Although separation of sutures is also associated with increased intracranial pressure, there was no evidence of papilledema or neurological abnormality in these children. "Catch-up" brain growth does occur when nutrition is restored, and the cranial signs should not be confused with intracranial pathology. (13 refs.) - *E. L. Rowan.*

McGill University
Montreal, Quebec, Canada

222 **SADEGHI-NEJAD, ABDOLLAH; LORIDAN, LILIANE; & SENIOR, BORIS.** Studies of factors affecting gluconeogenesis and glycolysis in glycogenoses of the liver. *Journal of Pediatrics*, 76(4):561-570, 1970.

Children with the 3 major types of glycogenoses (glucose-6-phosphate dehydrogenase deficiency or type I; amlo-1, 6-glucosidase deficiency or type III; and phosphorylase deficiency or type IV) all showed an increase in fructose-1, 6-diphosphatase activity when compared with that of normal controls. Phosphofructokinase activity was present and not significantly different from that of controls. The concentrations of cortisol and growth hormone were also normal, but insulin levels were lower ($p < .001$) than those of controls and free fatty acid levels were higher ($p < .001$). This suggests that concurrent activity of gluconeogenesis and glycolosis produces glucose and that these processes of synthesis need not be mutually exclusive. (52 refs.) - *E. L. Rowan.*

New England Medical Center Hospitals
Boston, Massachusetts 02111

223 **PETERSON, NEAL A.** Regulation of brain protein metabolism by amino acids. *California Mental Health Research Digest*, 8(1):33-35, 1970.

The presence of the 3 branched-chain amino acids (leucine, isoleucine, and valine) inhibited the incorporation of dissimilar branched-chain amino acids into protein by intact synaptosomal and mitochondrial fractions of homogenated brain tissue. The mechanism appeared to be competitive inhibition and was not observed with other amino acids tested. Homogentisic acid inhibited protein synthesis in both microsomal and ribosomal systems in mammalian tissue. The effects of this metabolite on other protein-synthesizing systems should be investigated. (No refs.) - *E. L. Rowan.*

Sonoma State Hospital
Eldridge, California 95431

224 **COTTON, R. G. H.; CAMAKARIS, J.; & DANKS, D. M.** A screening test for urinary purines and pyrimidines and related compounds using auxotrophic mutants of *Escherichia coli* K 12. *Biochemical Medicine*, 3(4):326-336, 1970.

Mutant strains of *Escherichia coli* K 12 blocked in a particular step of purine or pyrimidine

metabolism are potentially able to grow when the blocked substance is supplied and, therefore, may be of use in screening for excess amounts of these compounds in samples of body fluids. In humans, there are 4 enzyme defects of purine or pyrimidine metabolism which lead to excessive amounts of these compounds in the urine. Urine samples from 203 MR children were dried on filter paper and placed on cultures of mutant strains. Urine from 2 patients with orotic aciduria showed a large growth response on pyrimidine mutant CC-2, and another urine showed a similar response with the same strain; however, the particular defect in this latter patient has not yet been established. Refinement of this mutant strain growth method may lead to the development of a simple screening technique for purine and pyrimidine disorders. (17 refs.) - *E. L. Rowan.*

Royal Children's Hospital Research
Parkville, Victoria, Australia 3052

225 **SARCIONE, EDWARD J.; SOKAL, JOSEPH E.; LOWE, CHARLES U.** Hepatic glycogenolysis induced by glucagon in a patient with Type I liver glycogen disease. *Biochemical Medicine*, 3(4):337-343, 1970.

Serial blood determinations and liver biopsies in a 5-year-old girl with Type I liver glycogen disease indicated that glucagon induced active hepatic glycogenolysis as it would in a normal subject. Initially, there was a high fasting blood lactate and low blood glucose. As the hypoglycemia was corrected by glucose infusion, lactate levels decreased but were promptly elevated by glucagon infusion. That the end product of hepatic glycogenolysis in this child was lactic acid rather than glucose suggests that the accumulation of liver glycogen is a result of more than a simple deficiency of glucose-6-phosphatase and that increased liver glycogen synthesis also plays a role. (18 refs.) - *E. L. Rowan.*

No address.

226 **HOLM, VANJA A.; DEERING, WILLIAM M.; & PENN, RHESA L.** Some factors influencing the development of a voluntary PKU screening program: Possible implication for other screening procedures for newborns. *Journal of the American Medical Association*, 212(11):1835-1842, 1970.

The big controversy in phenylketonuria (PKU) screening (assuming feasible screening conditions have been met) is whether it should be mandatory or voluntary. Although it is assumed that mandatory legislation achieves 100% screening (there being evidence it does not), there are philosophical, political, and practical objections, including public resistance, depending on local habits and conditions. A voluntary screening program in the state of Washington (one of 29 participating in field trials of the Guthrie Inhibition Assay method of PKU screening) achieved 69% coverage in 1967 (the last year reported) and demonstrated that, of all the medicosociological variables in different communities, physician interrelationships carry the greatest weight (especially in the most populous communities) in determining whether a screening program would be established. The Washington experience furnished several observations to be considered in planning mass screening programs: once achieved, an adequate performance is not automatically maintained, hospital staff differences affect screening policy, areas with small populations and small hospitals need support, and periodic surveillance is needed for continuing effectiveness. (16 refs.) - *B. Berman.*

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Seattle, Washington 98105

227 Hunger's effect on growth found to be temporary. *Journal of the American Medical Association*, 212(11):1790-1791, 1970.

A study of slum children in Lima, Peru, showed that severe malnutrition in infancy had less impact on physical development than genetic endowment and total home milieu. The investigation included 18 "controls" who were given a good diet at the British American Hospital for 18-27 months after birth and then returned home, 15 children (all but one under 15 months) hospitalized for severe malnutrition, and 40 so-called healthy siblings with whom the other 2 groups were compared after they returned home. One year after the 18 returned home, they were just like the 40 siblings who had never left their environment or the 15 malnourished siblings who later caught up with the

"healthy" ones. Apparently, diet supplements alone will not solve the problems of MR associated with malnutrition. (No ref.) - *B. Berman.*

228 **FROST, PHILLIP; WEINSTEIN, GERALD D.; & NYHAN, WILLIAM L.** Diagnosis of Lesch-Nyhan syndrome by direct study of skin specimens. *Journal of the American Medical Association,* 212(2):316-318, 1970.

Autoradiographs of histologic skin sections from 4 Ss with Lesch-Nyhan syndrome and controls, both of which received intradermal injections of guanine and adenine tagged with tritium, showed no labeling with adenine ^{3}H. Normal specimens were labeled with both guanine and adenine. This *in vivo* test for the deficient enzyme in Lesch-Nyhan syndrome can be made with skin specimens from suspected newborns and used in screening institutionalized older children who don't show all the syndrome's typical features. Hypoxanthine-guanine phosphoribosyltransferase (HGPRT) deficiency and mosaicism (in female heterozygotes) have been shown in this syndrome. These studies demonstrated HGPRT deficiency but not mosaicism *in situ* in the obligate heterozygote Ss. (7 refs.) - *B. Berman.*

University of Miami School of Medicine
Miami, Florida 33136

229 **LEONARD, MARTHA F.; & SOLNIT, ALBERT J.** Growth failure from maternal deprivation or undereating. *Journal of the American Medical Association,* 212(5):882, 1970. (Letter)

Whittier *et al*'s study of infant failure to thrive consequent to maternal undereating was ethically and morally wrong in subjecting an infant, in the name of research, to harmful conditions. In addition, their experimental methods were faulty (observing a mother feeding her infant influences her feelings and the whole feeding process) as were their interpretations and conclusions. A child with unexplained failure to thrive needs investigation of both caloric intake and psychological factors. (1 ref.) - *B. Berman.*

Yale Child Study Center
New Haven, Connecticut

230 Pregnancy and diabetes: How risky? *Journal of the American Medical Association,* 212(8):1287-1288, 1970.

New studies have reported no significant increase in congenital anomalies in neonates of diabetic mothers or in perinatal mortality among women with gestational diabetes, and safe use of sulfonylureas in such women. In a consecutive series of 251 viable infants of diabetic mothers, complete records for 220 of the control infants and 240 of the "diabetic" infants showed only 8 of the latter group had mothers with gestational, or type A, diabetes. Multiple and major congenital anomalies, including MR and CP, were more common in the "diabetic" group, but not statistically significant. In 38 patients with class A diabetes, there was 1 perinatal death (2.6%); in 352 with normal carbohydrate tolerance, there were 15 deaths (4.3%). Scottish and South African studies of sulfonylureas have shown no hypoglycemia in neonates and no evidence of teratogenesis: diabetic pregnant women do not necessarily need insulin for metabolic control. The sulfonylureas can reverse maternal chemical gestational diabetes without causing hyper-insulism in either mother or neonate. (No refs.) - *B. Berman.*

231 **SCRIMSHAW, NEVIN S.** Synergism of malnutrition and infection: Evidence from field studies in Guatemala. *Journal of the American Medical Association,* 212(10):1685-1692, 1970.

The epidemiological research methods (studying disease incidence and prevalence in population fractions, plus its ecology) pioneered by Goldberger in his pellagra investigations led to today's field methods of nutritional disease investigations which explore the total gamut of nutritional, hygienic, sanitation, social, and cultural factors in host and environment in sequentially defined steps: conceptual idea, field reconnaissance, exploratory study, pilot study, definitive study, and analysis and interpretation. This methodology, applied to a 10-year series of field studies in Guatemala on the synergistic interaction of malnutrition and infection in preschool children in developing countries, has been rewarding (for example, a feeding program in Santa Catarina Barahna decreased mortality), surprising in some aspects (failure of feeding to decrease morbidity, especially diarrhea, in the feeding village), and

productive of on-going studies among the same populations. A single-factor approach—malnutrition—is insufficient; that and infection must be fought concurrently to stem high morbidity and impaired growth. (60 refs.) - *B. Berman.*

Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

232 **BUEDING, ERNEST; SIDBURY, JAMES; & ORRELL, STANLEY A., JR.** Sedimentation characteristics of native glycogens from human glycogen-storage diseases. *Biochemical Medicine*, 3(5):355-364, 1970.

Glycogen extracted (by a mild, quantitative, cold-water procedure) from liver tissue in patients with various types of glycogen-storage diseases (GSD) revealed that sedimentation-coefficient distribution curves for glycogen show characteristic features for a particular GSD type or tissue. Most liver samples were obtained by biopsy, then frozen and stored until extraction; sedimentation features were determined by analytic centrifuging. When the extraction method avoids degradation, a given organism, tissue, or physiological state will show a highly particularized distribution curve. Characteristic spectra are produced also by a deficiency or inhibition of a single enzyme needed in glycogen metabolism. Specimens taken from controls with other liver diseases showed pronounced heterogeneity in sedimentation spectra. (18 refs.) - *B. Berman.*

Johns Hopkins University
Baltimore, Maryland 21205

233 **ZACHMANN, M.; VOLLMIN, J. A.; MURSET, G.; CURTIUS, H.-CH.; & PRADER, A.** Unusual type of congenital adrenal hyperplasia probably due to deficiency of 3β-hydroxysteroid dehydrogenase: Case report of a surviving girl and steroid studies. *Journal of Clinical Endocrinology and Metabolism*, 30(6):719-726, 1970.

The case of a 6½-year-old girl with a possibly partial 3β-hydroxysteroid dehydrogenase deficiency is the second reported survival of this type of congenital adrenal hyperplasia. Hospitalized at age 13 days because of feeding difficulties, weight loss, and dehydration, she showed no asphyxia or cyanosis at birth, exhibited an unusual hyperpigmentation, and had normal female genitalia. A rare condition, it generally shows slight virilization in the female and results in death in infancy from salt-losing crises. After ACTH administration, diagnosis (following steroid studies by gas-liquid chromatography) was made probable by identification of the metabolites of pregnenolone and 17-hydroxypregnenolone (Δ5-pregnenetriol—the chief urinary steroid—and Δ5-pregnenediol); these were found even while the patient was under treatment with hydrocortisone. There were no signs of testosterone or pregnanetriolone (absence of the latter is a strong argument against a 21-hydroxylase deficiency). The main androsterone was 17-ketosteroid. This unusual case is most reasonably attributable to a partial, but not compensated, 3β-hydroxysteroid dehydrogenase deficiency. (20 refs.) - *B. Berman.*

University of Zurich Kinderspital
Zurich, Switzerland

234 **LEWIS, P. D.; & MILLER, A. L.** Argininosuccinic aciduria: Case report with neuropathological findings. *Brain*, 93(2):413-422, 1970.

A 16-year-old retarded boy illustrates the typical characteristics of argininosuccinic aciduria—a rare, familial disease presenting mental, neurological, and metabolic abnormalities. The boy (of normal, healthy parents) exhibited slow progress, had episodes of somnolence together with ataxia and epilepsy, presented unusual facies, and spoke with a cerebellar dysarthria. The disease was identified by argininosuccinic acid in the urine and plasma. Post-mortem liver analysis showed a urea-cycle enzyme deficiency, reflecting the Krebs–Henseleit defect characteristic of this disease. The most important neurological findings were a number of atypical astrocytic nuclei and gross neuronal loss in the thalamus, the latter a probable cause of severe dementia. The most likely explanation of the symptoms is the neurotoxicity resulting from high concentrations of blood ammonia. (27 refs.) - *B. Berman.*

Royal Postgraduate Medical School
Hammersmith Hospital
London, W.12, England

235 **BRUTON, C. J.; CORSELLIS, J. A. N.; & RUSSELL, A.** Hereditary hyperammonaemia. *Brain*, 93(2):423-434, 1970.

Two MR female cousins illustrate findings in hereditary hyperammonemia resulting from an inborn metabolic error (ornithine transcarbamylase deficiency) which seriously interferes with conversion of ammonia to urea. Both Ss (ill most of their lives with headache, vomiting, screaming, and periods of lethargy) showed excessively high ammonia levels in the blood and the cerebrospinal fluid; their mothers, who were sisters, showed similar but less serious metabolic difficulties. Both Ss developed status epilepticus and died prior to their eighth birthday. Postmortem findings revealed widespread distribution of Alzheimer type II astrocytes in the brain hemispheres with many Alzheimer type II glia in the brain-stem, cerebellum, and spinal cord. More serious damage appeared in the brain of the more severely retarded child. Similar findings, combined with varying other cerebral damage, have been demonstrated in extreme hyperammonemia caused by inborn deficiencies in various urea-cycle enzymes and in the brains of patients with chronic liver disease. The cerebral damage, especially the glial reaction, has been attributed by some workers to the hyperammonemia. (17 refs.) - *B. Berman.*

Runwell Hospital
Wickford, Essex, England

236 **ANNAMALAI, AL.; & FERNANDEZ, M. PETER.** Muscular hypertrophy due to juvenile hypothyroidism: An unusual and curable complication. *Clinical Pediatrics*, 9(6):368-371, 1970.

A 15-year-old boy, diagnosed with hypothyroid muscular hypertrophy and treated with thyroid, illustrates the curability of this pathology. With stunted growth, drowsiness, and slow cerebration from childhood, the S showed an apparently well-developed musculature with pronounced hypertonia, protuberant abdomen, easily elicited mounting phenomenon, and pseudomyotonic reflexes in the ankle jerks. Desiccated thyroid produced quick improvement and eventual cure. This pathology can follow thyrotoxicosis and is distinguished from myopathy by unmistakable cretinoid facies. Fatality in infancy can be prevented if the disease is recognized and treated in the neonatal period. (16 refs.) - *B. Berman.*

Government General Hospital
Madras, India

237 **PARK, ROGER W.; & *FRASIER, S. DOUGLAS.** Hyperthyroidism under 2 years of age. *American Journal of Diseases of Children*, 120(2):157-159. 1970.

A patient with onset of hyperthyroidism before age 13 months was referred for failure to thrive and diagnosed as having thyrotoxicosis at 18 months. Hospitalized with fever, vomiting, and labored breathing, he showed poor nutrition (despite increased appetite) and developmental delay, drank water excessively, and was nervous, irritable, and hyperactive. Pulse rate and blood pressure were high, the thyroid was enlarged, the skin was fine and warm, and the eyes appeared to be staring constantly. An unusual feature was the striking acceleration of bone age without an increase in height. Diagnosed initially as having diabetes mellitus, the S was given subcutaneous zinc insulin. On the fourth day, hyperthyroidism treatment was begun with strong iodine solution. After 16 days, the S was discharged and has since gained 1.7 kg and grown 4.7 cm; the pulse is down to 100 beats/minute. The thyrotoxicosis in this case raises the possibility of congenital (neonatal) hyperthyroidism. (7 refs.) - *B. Berman.*

*Los Angeles County-University of Southern California Medical Center
Los Angeles, California 90033

238 **ONISAWA, JINICHI; & LEE, TING-YANG.** Biochemical studies of urinary acid mucopolysaccharide-peptide complexes in Hurler's syndrome. *Biochemical Medicine*, 3(5):404-413, 1970.

Urinary analysis in 5 patients with genetic disorders of mucopolysaccharide metabolism (2 with Hurler's syndrome, 2 with Hunter's syndrome, and 1 with Scheie's syndrome) showed that degradation products of chondroitin sulfate and heparin sulfate polymers (both isolated from the urine) vary chemically from those taken from normal urine. Most of the polysaccharides in the Ss with Hurler's syndrome were eluted into the 1.5 and 20 M fractions at ethanol concentrations of 2.0 and

70%. In Hurler's and Hunter's syndromes, chondroitin sulfate B was recovered from the 1.5 M and 2.0 M NaCl eluates; in the Scheie's syndrome, it was recovered chiefly from the 1.5 M NaCl eluate of a Dowex 1-x2 column. Demonstration of different modalities in these fractions by paper electrophoresis suggested a minimum of 2 molecular varieties of chondroitin sulfate B. Amino-acid content displayed 2 heparitin-sulfate varieties: one with predominance of serine and the other rich in aspartic acid, serine, glutamic acid, and glycine. The heterogeneity of the mucopolysaccharides may be the reason for reported discrepancies between the clinical and biochemical phenotypes in these metabolic disorders. (24 refs.) - *B. Berman.*

University of Tokyo
Tokyo, Japan

239 **CRAWHALL, J. C.; PURKISS, P.; & YOUNG, E. P.** Cystine metabolism in the dog. *Biochemical Medicine*, 3(5):384-396, 1970.

Intravenous injection of ^{35}S-L-cystine into 4 unanesthetized dogs permitted study of the quantitative aspects of cystine transport and metabolism, which are involved in 2 hereditary metabolic disorders of the sulfur-amino acids—cystinuria and cystinosis. After cystine was isolated from the plasma by 2 different methods, measurement of the rate of radioactivity decrease demonstrated an almost immediate equilibration of the isotope into a larger volume than that of the plasma and extracellular space. The sum of 2 exponential terms (the first reflecting extracellular-cystine uptake into the intracellular space, the second reflecting turnover rate of radioactive cystine) indicated the decreased rate of radioactivity: 16μ mole/kg/hr in one dog, and 38μ mole/kg/hr in another. Although ^{35}S-L-cystine's fate was not ascertainable, radioactivity loss was explicable by tissue uptake of the amino acid and equilibration with the intracellular amino-acid pool. (7 refs.) - *B. Berman.*

McGill University
Montreal, Canada

240 **PATEL, V.; TAPPEL, A. L.; & O'BRIEN, J. S.** Hyaluronidase and sulfatase deficiency in Hurler's syndrome. *Biochemical Medicine*, 3(6):447-457, 1970.

Liver tissues from 6 patients who died with mucopolysacchardiosis (Hurler's syndrome), including Types I, II, and III, showed liver deficiencies of hyaluronidase, sulfatase, and galactosidase. The study included 11 controls of the same age as the Ss, and comparative analyses of other diseased tissues. Hyaluronidase deficiency in Ss was 20-54% of normal; sulfatase deficiency was 20-35% of normal in Type I, and 60-80% in Types II and III. Deficiencies of α and β- galactosidases were of varying ranges; the β deficiency (caused by a lack of specific β-galactosidase isozyme rather than an inhibitor) could explain cerebral storage of gangliosides and other glycolipids seen in Hurler's syndrome. The importance of the hyaluronidase deficiency is difficult to assess, since the syndrome has not shown accumulations of hyaluronic acid. β-Galactosidase and hyaluronidase deficiencies partly explain the accumulations, in Hurler's syndrome, of acidic glycosaminoglycans and glycolipids, which may result from defective catabolic activity in lysosomes. (45 refs.) - *B. Berman.*

University of California
Davis, California 95616

241 **FURTH, EUGENE D.; AGRAWAL, RAM B.; & PROPP, RICHARD P.** Secretion of iodoalbumin and iodoprealbumin by a congenital goiter containing thyroglobulin and the iodoalbumins. *Journal of Clinical Endocrinology and Metabolism*, 31(1):60-69, 1970.

Detailed studies of a 33-year-old female goitrous cretin support the hypothesis of intrathyroidal iodination of serum proteins deriving from thyroid hyperfunction and/or hyperplasia. Small at birth and with subsequent mental and growth retardation, the Ss had no family history of thyroid disease or goiter but presented circulating iodoalbumin and iodoprealbumin. Protein-bound iodide and total serum iodine and other evaluations suggested the thyroid gland was able to synthesize thyroglobulin but unable to hydrolyze and release its biologically active thyronines. The gland was able to take up iodinate and release serum albumin and prealbumin. Thyroidal and serum albumins showed no physical, chemical, or immunological

differences from those of normal individuals. The presence of a large congenital goiter associated with elevated plasma thyrotropin supported the hypothesis that some form of hyperplasia or gland hyperfunction is common to thyroid disorders. The possibilities exist that there is a mechanism for selective uptake or iodination by the thyroid or that the primary cause of the goiter was deficiency or absence of protease activity. (53 refs.) - *B. Berman.*

Albany Medical College of Union University
Albany, New York 12208

242 **MAYO, O.** On the maintenance of polymorphisms having an inviable homozygote. *Annals of Human Genetics,* 33(3):307-317, 1970.

The hypothesis which proposes that greater fertility of heterozygotes explains the high frequencies of fibrocystic disease of the pancreas in Caucasians and Tay-Sachs disease in Ashkenazi Jews is not supported by the evidence. While mutations appear to maintain many serious conditions determined by single genes (particularly where affected individuals are inviable or infertile), in other conditions (such as sickle-cell anemia, thalassemia, fibrocystic disease of the pancreas, and Tay-Sachs disease) a heterozygous advantage may operate. This can be either by an increase in viability (such as protection from malaria conferred by abnormal hemoglobins) or fertility of the heterozygotes. While evidence of the latter effect in Tay-Sachs disease and fibrocystic disease of the pancreas is inadequate, other possibilities, also unsupported as yet, may include such factors as the recent large increase in population, and that certain genes are in fact relics which are disappearing. (29 refs). - *M. S. Fish.*

University of Edinburgh
Edinburgh, Scotland

243 **PARKER, CHARLES E.; SHAW, KENNETH N. F.; JACOBS, E. ELMO; & GUTENSTEIN, MORRIS,** Hydroxylysinuria. *Lancet,* 1(7656):1119-1120, 1970. (Letter)

The occurrence of 3 recent cases of elevated urinary hydroxylsine excretion may be indicative of a previously unreported inherited metabolic disorder. In 1 case, a 4-year-old white female with hyperactivity, poor speech, IQ and DQ of 64 (Slosson) and 58 (Gesell), respectively, had abnormally high excretion patterns of δ -hydroxylysine and its 2 monoacetyl derivatives. Electrophoresis and ion exchange chromatography confirmed these findings. Excretion of hydroxylysine was 52-55 mg/g before and 117 mg/g of urinary creatinine after hydrolysis with 6N hydrochloric acid. Serum hydroxylysine was 0.13 mg/100 ml, compared with negligible amounts in the sera of normal Ss. Both parents of the S had low urinary levels of hydroxylysine; however, the 2 clinically normal sisters had slightly higher levels, both before and after hydrolysis. The other 2 patients were a 19-year-old man and his 16-year-old sister, both of whom were MR and had urinary excretion of hydroxylysine. A relation between these excretion patterns and clinical manifestations has not yet been established. (1 ref.) - *M. S. Fish.*

Childrens Hospital of Los Angeles
Los Angeles, California 90027

244 **WINICK, MYRON.** Fetal malnutrition and growth processes. *Hospital Practice,* 5(5):33-41, 1970.

Since growth consists first of increase in cell number followed by increase in cell size, fetal malnutrition (leaving a deficit in total cell number) places the brain at severest risk among bodily organs since it completes its growth first. Nutrition studies in rats showed that the total number of brain cells, as measured by DNA content, varies according to the time and extent of malnutrition. In animals receiving normal nutrition during pregnancy, malnutrition from birth to weaning at 21 days caused a 25% decline in brain DNA, and normal nutrition for 9 days after birth, followed by malnutrition for 12 days, caused a 10% reduction, both compared with 100% for rats receiving normal nutrition throughout. Overfeeding for 12 days following a 9-day malnutrition period in this group restored the initial deficit. Malnutrition during pregnancy produced animals with a 16% deficit at birth, followed by an increased deficit to 60% if malnutrition was continued until weaning. Post-mortem examination of 2 groups of young children in Santiago indicated that the 10 well-nourished children who died of causes other than malnutrition had cellular brain growth comparable with that of normal U.S.

children; 9 infants dying of malnutrition had brains in which the weight and the protein, DNA, and RNA content were reduced. In 3 of these, DNA content was 40% of the expected value. Other findings suggest that prenatal malnutrition can also increase the vulnerability of the brain to postnatal insult. (No refs.) - *M. S. Fish.*

Cornell University Medical School
New York, New York 10021

245 **HUG, GEORGE; SCHUBERT, WILLIAM K.; & SOUKUP, SHIRLEY.** Prenatal diagnosis of type-II glycogenosis. *Lancet,* 1(7654):1002, 1970. (Letter)

Ultrastructural studies of epithelial cells obtained by amniocentesis late in the gestational period can provide evidence for the presence or absence of the lysosomal disorder, type-II glycogenosis. Hopefully this diagnostic procedure can be adapted for use at an earlier time during the pregnancy so that it can be of therapeutic value. The experimental procedure involved removal by amniocentesis of amniotic fluid cells during the thirty-sixth gestational week from 6 normal women and 3 women who had previously given birth to children with type-II glycogenosis. Although variations in cytoplasmic glycogen concentration of the Ss were not demonstrable, amniotic fluid cells of 1 S of the latter group showed accumulations of glycogen surrounded by a membrane. These vacuoles (abnormal lysosomes) also appeared in a skin biopsy specimen of the newly born infant of this particular S, and abnormalities of the umbilical cord, liver and muscle of this infant, together with a deficiency of acid α-glucosidase, confirmed the diagnosis of type-II glycogenosis. The other 8 pregnancies in which morphological evidence of lysosomal disease was lacking produced healthy children. (3 refs.) - *M. S. Fish.*

Children's Hospital Research Foundation
Cincinnati, Ohio 45229

246 **GOLDMAN, H.; SCRIVER, C. R.; AARON, K.; & PINSKY, L.** Use of dithiothreitol to correct cystine storage in cultured cystinotic fibroblasts. *Lancet,* 1(7651):811-812, 1970.

Dithiothreitol (2,3-dihydroxy-1,4-dithiobutane, DTT) may be useful in the treatment of cystinosis, an autosomal recessive trait which is characterized by excessive storage of cystine in lysomes. Treatment of cultured cystinotic fibroblasts from type-1 (the "fatal," infantile form) patients with DTT lowered intracellular free cystine without apparent toxic effects. *In vivo* toxicity studies with 4-week-old weaned rat pups injected intraperitoneally every 8 hours with 25 mg/kg of DTT confirmed the lack of toxicity of the material. Only food uptake was lowered; hemoglobin, plasma proteins, and blood glucose concentrations were unchanged. A 10-year-old terminally ill male cystinotic patient tolerated intravenous doses (15 mg/kg every 8 hours) well, although a larger dose (25 mg/kg) produced nausea and vomiting. A 10-day schedule of DTT lowered the cystine content of rectal mucosa from 70.2 to 47.6 μmole/g protein. The clinical effects of long-term oral administration of DTT in cases of cystinosis are under investigation. (8 refs.) - *M. S. Fish*

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Montreal 108, Canada

247 **DANES, B. SHANNON; QUEENAN, JOHN T.; GADOW, ENRIQUE C.; & CEDERQVIST, LARS L.** Antenatal diagnosis of mucopolysaccharidoses. *Lancet,* 1(7653):946-947, 1970. (Letter)

Qualitative determination of mucopolysaccharides in the amniotic fluid during pregnancy may be more informative of the presence in the fetus of a disease such as Hurler's syndrome than quantitative determination. Serial amniocenteses throughout the course of the pregnancy can also provide clues related to this and other types of mucopolysaccharidoses since mucopolysaccharide content of the fluid remains high in the affected fetus while it shows a steady decrease throughout gestation of the normal fetus. Of the amniotic fluids from 16 normal, 14 Rhesus-incompatible, and 6 cystic-fibrosis heterozygous pregnancies, no significant difference in mucopolysaccharide content was noted, although the Rh-incompatible pregnancies were associated with considerable fluctuation in levels. Previous reports have indicated the presence of heparitin sulfate in the amniotic fluid of a fetus with Hurler's syndrome. Since the normal fluid does not contain the substance, the value of the qualitative test is suggested. (4 refs.) - *M. S. Fish.*

Cornell University Medical College
New York, New York 10021

248 Sex ratio in phenylketonuria. *Lancet*, 1(7653):931-932, 1970. (Editorial)

Neonatal screening for phenylketonuria (PKU) should include Guthrie tests which are performed approximately 48 hours and 1 month after birth and only after protein feeding for 24 hours, since present screening tests appear to miss a number of female PKU cases. Although a combination of methods (ascertainment of MR, family studies, and pilot screening) indicates that the sex ratio for classical PKU is approximately unity, a recent series of 90 cases of PKU, as determined in babies up to 121 days of age by measurement of plasma phenylalanine levels, had a sex distribution of 60 males and 30 females. In other reported studies in which screening alone was utilized, 91 male and 65 female PKU cases were identified. More definitive enzyme studies on hyperphenylalaninemia patients and follow-up of cases with initially elevated plasma phenylalanine levels but showing later tolerance to normal diet will indicate whether or not types of hyperphenylalaninemia other than classical PKU are X-linked. (3 refs.) - *M. S. Fish.*

249 **DAVID, RONALD B.; GOMEZ, MANUEL R.; & OKAZAKI, HARUO.** Necrotizing encephalomyelopathy (Leigh). *Developmental Medicine and Child Neurology*, 12(4):436-445, 1970.

Three additional cases of necrotizing encephalomyelopathy bring the total reported to over 60. The clinical symptoms include weakness, anorexia, incoordination, and visual-motor disturbances in an otherwise healthy infant and later respiratory distress, emesis, and convulsions. Pathologically, there are roughly symmetrical areas of tissue necrosis and vascular hyperplasia in the gray matter of the brain stem. A family pattern suggests an autosomal recessive inherited disorder, and the discovery of elevated pyruvate and lactate levels suggests an enzyme deficiency. (48 refs.) - *E. L. Rowan.*

Mayo Graduate School of Medicine
University of Minnesota
Rochester, Minnesota 55901

250 **KAMOSHITA, SHIGEHIKO; MIZUTANI, IKUKO; & FUKUYAMA, YUKIO.** Leigh's subacute necrotizing encephalomyelopathy in a child with infantile spasms and and hypsarrhythmia. *Developmental Medicine and Child Neurology*, 12(4):430-435, 1970.

A 7-month-old boy showed a series-forming pattern of spasms and an EEG pattern characteristic of hypsarrhythmia. At autopsy, there was bilateral necrotic softening in the putamen and around the aqueduct of the midbrain. The spongy or microcystic degeneration and vascular proliferation were characteristic of subacute necrotizing encephalomyelopathy. This case adds this entity to those conditions now known to cause infantile spasms. (29 refs.) - *E. L. Rowan.*

University of Tokyo
Hongo, Tokyo 113, Japan

251 **PAYLING-WRIGHT, C. R.; & EVANS, P. R.** A case of β-xylosidase deficiency. *Lancet*, 2(7662):43, 1970.

A 9-month-old girl with documented β-xylosidase deficiency showed floppiness, frequent fits, choreoathetotic movements, apparent deafness and blindness, microcephaly, a hypsarrhythmic pattern on EEG, and cortical atrophy on pneumoencephalography. Allegedly, she had appeared normal during the first 3 months of life. (3 refs.) - *E. L. Rowan.*

Galton Laboratory of Human Genetics
University College
London, England

252 **YU, J. S.; STUCKEY, S. J.; & O'HALLORAN, M. T.** Atypical phenylketonuria: An approach to diagnosis and management. *Archives of Disease in Childhood*, 45(242):561-565, 1970.

Atypical phenylketonuria (hyperphenylalaninemia) results from a partial lack of phenylalanine hydroxylase and is clinically distinguishable from classic phenylketonuria (PKU) on the basis of serum phenylalanine levels which are elevated but less than the critical 20 mg/100 ml, despite typical phenylalanine loading intolerance and abnormal urinary metabolites. Nine such children were followed for a period of time. They showed greater tolerance for phenylalanine, and careful dietary management was necessary, especially dur-

ing the first 6 months of life, to keep the serum level between 5 and 7.5 mg/100 ml. Except for 2 microcephalic sibs, these children showed normal physical and mental development. (23 refs.) - *E. L. Rowan.*

Dept. of Child Health
Royal Alexandra Hospital for Children
Camperdown, New South Wales 2050, Australia

253 **BEUTLER, ERNEST; & KUHL, WANDA.** Detection of the defect of Gaucher's disease and its carrier state in peripheral-blood leucocytes. *Lancet*, 1(7647):612-613, 1970. (Letter).

Investigation of the β-glucosidase activity of leukocytes has permitted, for the first time, detection in peripheral-blood cells of the enzyme deficiency in Gaucher's disease (a lipid-storage disease with glucocerebroside accumulation in reticuloendothelial cells) and detection of carriers of the disease with commercially available reagents. A comparison of the pH-activity curves of leukocytes in acetate buffers, pH 4.0 to 6.5, for patients with Gaucher's disease and normals showed a significant enzyme-activity difference at pH 4. Assays of peripheral-blood leukocytes for 5 adult Ss with Gaucher's disease, 6 obligate heterozygote patients, and 13 normals showed strong enzyme-activity decline for all Ss with the disease. Normal leukocytes contain at least 2 acid glucosidases; the genetic defect in Gaucher's disease causes a greater decline in β-glucosidase activity with the lower pH optimum. (8 refs.) - *B. Berman.*

City of Hope Medical Center
Duarte, California 91010

254 **WELCH, J. PHILIP.** Children of mothers with phenylketonuria. *Lancet*, 1(7649):722-723, 1970. (Letter)

The frequency of untreated phenylketonurics (PKUs) with IQ greater than 60—even in an unscreened newborn population—is between 1×10^{-5} and 2.5×10^{-5}. When the higher estimate is assumed, the likelihood of homozygosity for a mother of identical twins is about 0.2%; thus, one could not argue that a mother is probably homozygous because several of her children are retarded. These factors also argue against a screening test to detect PKUs with relatively normal intelligence: such a program would be unproductive and economically unsound. (11 refs.) - *B. Berman.*

Dalhousie University
Halifax, N.S., Canada

255 **YU, J. S.; & O'HALLORAN, M.T.** Children of mothers with phenylketonuria. *Lancet*, 1(7649):723, 1970. (Letter)

Evidence is cited to support the concepts that the fetuses of both classic and atypical PKU mothers may be at risk from hyperphenylalaninemia and that atypical PKUs will probably attain near-normal intelligence. Screening for these cases would attempt not to find high-grade PKU women, but to prevent MR in infants. (7 refs.) - *B. Berman.*

Royal Alexandra Hospital for Children
Camperdown, New South Wales, Australia

256 **COX, RODY P; DOUGLAS, GORDON; HUTZLER, JOEL; LYNFIELD, JOSHUA; & DANCIS, JOSEPH.** In-utero detection of Pompe's disease. *Lancet*, 1(7652):893, 1970. (Letter)

In-utero detection of type-II glycogenosis (Pompe's disease) presents diagnostic problems when blood contaminates the amniotic fluid. Such contamination in a 22-year-old woman during her second pregnancy (her first child had Pompe's disease) prevented a firm diagnosis and required amnion-cell cultures which, in 5 weeks, permitted assay for α-1, 4-glucosidase activity (the latter being absent in Pompe's disease). A definitive diagnosis when the amniotic fluid is blood-contaminated is achieved by centrifugation removal of all cellular elements and analysis of the supernatant fluid for glucosidase activity. (4 refs.) - *B. Berman.*

New York University Medical Center
New York, New York 10016

257 First IU diagnosis of Tay-Sachs hints at control. *Medical World News*, 11(15):5, 1970.

Intrauterine diagnosis of Tay-Sachs disease was made when amniocentesis was performed during the twenty-first week of the second pregnancy of a woman who had previously given birth to a child with Tay-Sachs disease. The embryonic tissue and fluid were analyzed for the enzyme hexosaminidase component A, which proved to be absent. A therapeutic abortion was performed, and the diagnosis was confirmed. (No refs.) - *J. K. Wyatt*

258 **CARSWELL, F.; KERR, M. M.; & HUTCHINSON, J. H.** Congenital goitre and hypothyroidism produced by maternal ingestion of iodides. *Lancet*, 1(7659):1241-1243, 1970.

In 8 cases (6 males, 2 females) of congenital goiter and hypothyroidism due to maternal ingestion of iodide, there were 4 deaths, and 2 of the surviving patients were MR. Two deaths were due to unrelated causes. MR seemed due to fetal hypothyroidism. Mothers' mean daily iodine intake ranged from 12 to 1650 mgs. Maternal goiter was present in 4 cases. The use of iodide preparations should be discouraged during pregnancy, and they should not be available without prescription. (19 refs.) - *J. K. Wyatt.*

Royal Hospital for Sick Children
Glasgow, C.3, Scotland

259 Treatment of phenylketonuria. *Lancet*, 1(7659):1272-1273, 1970.

An analysis of the treatment results of 184 cases of PKU provided a convincing demonstration of the value of special diet. The mean development quotient for 148 Ss was 95.8 before the age of 2½ years; 97 patients had a mean IQ of 90.4 after age 2½ years. The mean IQ of affected siblings was 53.3. The heights of 69 treated Ss were slightly below the expected mean. Treatment was satisfactory when the mean blood-phenylalanine level was below 10 mg/100 ml. It appears unnecessary and undesirable to aim at physiological levels of blood-phenylalanine during treatment. Treatment in all cases was initiated prior to 4 months of age. (15 refs.) - *J. K. Wyatt.*

260 **HANSEN, HOLGER; & HOFFMAN, ANNE.** Sex ratio in phenylketonuria. *Lancet*, 1(7658):1229, 1970. (Letter)

In tests for PKU during the first week of life, twice as many males (49) as females (24) were detected as presumptively positive; this ratio was reversed during the second week of life. The sex differential was concentrated ($p < .005$) at the 4 mg/100 ml blood phenylalanine level (29 males, 10 females). It may be that tests during the first week of life miss many females with PKU. Data were obtained from a 1967 health department screening of 150,000 newborns. (3 refs.) - *J. K. Wyatt.*

New York State Department of
Mental Hygiene Epidemiology
New York, New York 10032

261 **KNOX, W. EUGENE; & KANG, ELLEN S.** Excess male false-positives among infants with phenylketonuria. *Lancet*, 1(7661):1390-1391, 1970. (Letter)

The excess of males under treatment for phenylketonuria may be due to the inclusion of an excess of males with other disturbances in the series rather than to the failure of present screening methods to identify a substantial number of females. There seems to be an excess of males among the false-positives on whom treatment must be initiated to avoid injury, and these patients are sometimes not identified until the age of 3 or 6 months. Of 44 cases followed until at least 15 months of age, presumptive diagnosis was revised in 9 males and 4 females; the diagnosis of phenylketonuria was retained in 15 males and 16 females. A previous suggestion that testing in the second week of life would probably give a sex ratio of unity appears doubtful since confidence in the correctness of a diagnosis of phenylketonuria cannot be established until early in the second year of life. (4 refs.) - *J. K. Wyatt.*

Harvard Medical School
Boston, Massachusetts 02115

262 **CALDEYRO-BARCIA, ROBERTO.** Fetal malnutrition: The role of maternal blood flow. *Hospital Practice*, 5(6):33-43, 1970.

Fetal malnutrition can occur despite normal dietary nutrition when the exchange of critical

nutrients between mother and fetus is insufficient to maintain fetal homeostasis. When this occurs, the components of fetal blood are altered by decreased intake of anabolites which results in hypoxemia, acidosis, hypoglycemia, and hypercapnia. Failure of maternal circulation which serves the placenta is frequently the responsible factor when fetal metabolism needs are not met. In this state of placental insufficiency, the fetus does not receive needed nutrients because the maternal supply line cannot deliver them. To assure circulation to the fetus, the body of the pregnant woman makes circulatory adjustments during pregnancy. In one study, these failed to occur in women with toxemia, hypotension, and hypertension. Since the supine position in late pregnancy predisposes to maternal arterial hypotension, women should assume the lateral position when lying down. The fetus-at-risk during delivery can be identified by a transient drop in the fetal heart rate following the peak of a contraction by about 40 seconds. The fetus-at-risk also shows evidence of tachycardia. Infants born following intrapartum fetal distress may show transient neurologic defects. (No refs.) - *J. K. Wyatt.*

University of the Republic
Montevideo, Uruguay

263 McDONALD, R.; GREENBERG, E. N.; & KRAMER, R. Cryptococcal meningitis. *Archives of Disease in Childhood,* 45(241):417-420, 1970.

Prolonged treatment with amphotericin B and 5-fluorocytosine resulted in good recovery without serious toxic effects in 2 cases (CAs 4 and 7 yrs) of cryptococcal meningitis. Symptoms were present for 2 weeks and 3 months, respectively, prior to treatment. In a third case, symptoms were present for 2 months prior to treatment. Signs of increased intracranial pressure were present and treatment with actidione for a 2-week period did not result in improvement, and prognosis was poor. Early symptoms of the pulmonary type of cryptococcal meningitis may include fever with cough, loss of weight, and dyspnoea on exertion. X-ray may evidence a single lesion, pneumonia infiltration, or widespread dissemination. When the central nervous sytem is affected, the signs may be those of a meningitis or a space-occupying lesion. The cerebral spinal fluid evidences increased protein, decreased sugar, and a lymphocytic pleocytosis. The disease is chronic, and there is a marked tendency to relapse. (11 refs.) - *J. K. Wyatt.*

University of Capetown
Capetown, South Africa

264 KOMROWER, G. M.; & LEE, D. H. Long-term follow-up of galactosaemia. *Archives of Disease in Childhood,* 45(241):367-373, 1970.

Diagnosis and treatment of galactosemia should be made as early as possible to save life, reduce the possibility of permanent liver damage, and allow for the development of reasonable intelligence. Sixty galactosemic children (22 boys, 38 girls; CA range 2 yrs 2 mos – 17 yrs 2 mos; IQ range 30–118, Griffiths Developmental Scale, Stanford-Binet, and Wechsler Intelligence Scale for Children) on a galactose low diet evidenced good physical health but below average mental development. IQ scores were progressively lower with increases in age, a factor which may be related to the newness of the diet and to a previous lack of suitable preparations or to earlier hospital practices in which babies were separated from their mothers for long periods of time. Children who had been on a good diet had an average IQ of 84 while those on a moderate to poor diet had an average IQ of 77 ($p < .01$). Mean IQ for a group of 6 children who were diagnosed late was 48. WISC data from 21 Ss and Bender-Gestalt drawings from 23 Ss indicated the presence of perceptual disorders of an unspecific nature. Data from the Bristol Social Adjustment Scale suggested that these Ss were timid, lacking in assertiveness, withdrawn, and anxious about their relationships with adults. They seemed to lack motivation in a learning situation. (10 refs.) - *J. K. Wyatt.*

Royal Manchester Children's Hospital
Manchester, M27 1HA, England

265 HANSEN, HOLGER. Epidemiological considerations on maternal hyperphenylalaninemia. *American Journal of Mental Deficiency,* 75(1):22-26, 1970.

A study of about 40 phenylketonuric mothers reported in international literature disclosed that maternal blood-phenylalanine (PA) level alone is not a good predictor of the offspring's mental

level, particularly when maternal intelligence is controlled; maternal IQ is a far stronger correlate of progeny intelligence. Of the 26 mothers with hyperphenylalaninemia (HPA), three-fourths had retarded children, but retardation could not be attributed to the HPA, since three-fourths of the whole sample was detected because of recognized familial MR. Maternal HPA, however, is considered the reason for the significant number of progeny with intrauterine growth retardation (assessed by mean birth weight and mean head circumference); about four-fifths of the retarded progeny showed low birth weight and/or microcephaly. When the biochemical imbalance affects the mother herself, it is more likely to affect her offspring. (31 refs.) - *B. Berman.*

Columbia University
New York, New York 10032

266 **BUTCHER, RICHARD E.** Learning impairment associated with maternal phenylketonuria in rats. *Nature*, 226(5245):555-556, 1970. (Letter)

Pregnant rats, fed a phenylketonuria (PKU)-inducing diet, developed a biochemical analogue of human PKU—including the customary phenylalanine/tyrosine ratio—(controls did not show these symptoms) and produced "retarded" offspring with impaired maze-learning ability. The learning impairment was distinguishable from that resulting from *p*-chlorophenylalanine inhibitor alone, not caused by inadequate fostering or subsequent physical development, and consistent with findings in offspring of human PKU mothers. (5 refs.) - *B. Berman.*

University of Cincinnati
Cincinnati, Ohio 45221

267 **PALO, J.; & MATTSSON, K.** Eleven new cases of aspartylglucosaminuria. *Journal of Mental Deficiency Research*, 14(2):168-173, 1970.

Screening (by one-dimensional paper chromatography of urinary amino acids) of 2,090 institutionalized retardates in Finland (to estimate PKU and other metabolic disorders among retardates) disclosed 11 new cases of aspartylglucosaminuria (an inborn metabolic error in which an enzyme defect in glycoprotein catabolism causes accumulation of 2-acetamido-1-(β-L-asparta-mido)-1, 2-dideoxy-β-D-glucose-AADG). The Ss (CA 13-37 yrs) presented coarse features bone or connective-tissue abnormalities, various skin and respiratory infections, and MR (IQ < 10-41). In 9 cases, there was aggressive and erratic behavior. Neurological condition, except for clumsiness, was generally normal, although dysrhythmic waves appeared in EEGs of 3 Ss; these same Ss also showed vacuolization in the lymphocytes. Early diagnostic techniques and treatment still await further research. (12 refs.) - *B. Berman.*

University of Helsinki
Helsinki, Finland

268 **SUH, SE MO; FRASER, DONALD; & KOOH, SANG WHAY.** Pseudohypoparathyroidism: Responsiveness to parathyroid extract induced by vitamin D_2 therapy. *Journal of Clinical Endocrinology and Metabolism*, 30(5):609-614, 1970.

The first reported instance of improvement in response to bovine parathyroid extract (PTE) following administration of large doses of vitamin D_2 was noted in a girl with pseudohypoparathyroidism. The MR girl (CA 11 yrs, 8 mos) presented convulsions and tetany, short stature, and intracranial calcification. Thyroid-replacement therapy was begun shortly after thyroidectomy. Large PTE doses preceding use of vitamin D_2 elicited a slight, but subnormal, calcemic response and no phosphaturic reaction. The same dose during vitamin D_2 therapy promptly elevated the serum calcium response to PTE from 10.0 to 14.4 mg/100 ml, along with a notable rise in phosphate-excretion rate and clearance. In addition, a very small calcium intake triggered a marked hypercalcemic reaction to PTE, reflecting mobilization of bone calcium. If the patient is already on vitamin D_2 therapy, this parathyroid hormone response may be unreliable in diagnosing pseudohypoparathyroidism. (23 refs.) - *B. Berman.*

University of Toronto
Toronto, Ontario, Canada

269 **ROSENBLATT, DAVID; MOHYUDDIN, FAZL; & *SCRIVER, CHARLES R.** Histidinemia discovered by urine screening

after renal transplantation. *Pediatrics*, 46(1):47-53, 1970.

A 17-year-old girl is the first reported case of histidinemia (an autosomal-recessive disorder with deficiency of the enzyme histidase or histidine α-deaminase) in a person surviving renal transplantation. Unimpaired in speech or intelligence, the S presented urinary secretion of histidine directly related to her plasma amino-acid concentration, which, in turn, correlated with dietary protein intake. An accumulation of imidazole derivatives reflected an impairment of histidine catabolism; a similar partial impairment in the parents indicates the disease's genetic basis. Apparently chimerical for histidase, the S's host tissues were of the histidinemic genotype. The "foreign" kidney tissue contributed negligible histidine activity, showed normal transportation of histidine and its metabolites, and excreted urine with metabolites, reflecting the histidase deficiency in the host tissues. This "chimerism" suggests a productive use for future transplantations, if appropriate organs of normal genotype are the source of a missing enzyme in a mutant homozygote. (23 refs.) - *B. Berman.*

*2300 Tupper Street
Montreal 108, Quebec, Canada

270 **HARGREAVES, TOM.** Inborn errors of metabolism. *Nursing Mirror*, 131(1):30-31, 1970.

Ultimately, all inborn errors of metabolism are expressed through changes in the kind or amount of one or more specific proteins. Laboratory investigation of metabolic errors includes investigation of the specific enzyme defect, demonstration of excess substrate, and demonstration of unusual metabolites. Since irreversible damage caused by some inborn errors of metabolism can be prevented if adequate treatment is begun early, every effort should be made to screen neonates for metabolic defects which can be detected. The Scriver technique of blood aminoacid chromatography used in detecting phenylketonuria also detects other inborn errors of aminoacid metabolism. Screening programs should include urine examination for a reducing substance to detect carbohydrate metabolic disorders such as galactosemia. Methods of treating metabolic disorders include supplying the missing protein or metabolites, limiting the intake of a precursor which may undergo toxic accumulation, manipulating the environment, depleting stored substances, and using metabolic inhibitors. (No refs.) - *C. L. Pranitch.*

Area Department of Pathology
Exeter, Devon, England

271 **ROSNER, FRED; KAGEN, MARVIN D.; & DANA, MILTON.** The sea-blue histiocyte syndrome. *New England Journal of Medicine*, 282(19):1100-1101, 1970. (Letter)

A Trinidad Negro (CA 20 yrs) was hospitalized because of a grand-mal seizure, fever, a right supraclavicular node, and a large firm nontender spleen. Biopsy of the supraclavicular node revealed coalescent epithelioid tubercles and central caseation with typical Langhans giant cells. After being given antituberculosis therapy, the S's fever disappeared, he gained weight and was discharged with a diagnosis of possible disseminated tuberculosis. A bone marrow aspiration revealed moderate numbers of sea-blue histiocytes; identical cells were seen in 3 subsequent marrow aspirations during the next 14 months. The S was thought to have a slowly progressive form of Niemann-Pick disease. Of 9 other patients reported to have sea-blue histiocytes, 1 other patient was a native of the West Indies. (4 refs.) - *C. L. Pranitch.*

Maimonides Medical Center
Brooklyn, New York

272 **KOCH, RICHARD; SHAW, KENNETH N. F.; ACOSTA, PHYLLIS B.; FISHLER, KAROL; SCHAEFFLER, GRACIELA; WENZ, ELIZABETH; & WOHLERS, AUDREY.** An approach to management of phenylketonuria. *Journal of Pediatrics*, 76(6):815-828, 1970.

The management (primarily dietary) of 140 patients (126 with classical cases) with phenylketonuria (PKU) is described. A phenylalanine-restricted diet (70-90 mg/kg of body weight) was used in 104 of the patients for as long as 10 years. A serum phenylalanine level of 2-8 mg/100 ml is a practical achievement; 1-3 mg/100 ml may require too restrictive a diet. Two years of experience with the California mandatory screening program revealed 39 cases of PKU in newborn (1:16,000);

the average age at diagnosis was 2-3 months in 1968, compared with 96 months in 1964. This permitted the initiation of earlier treatment. Because of the genetic nature of PKU, other members of a patient's family were also tested. Dietary treatment is sometimes helpful (improved attention and learning ability) in older children. Of the original 126 children with classical PKU, 104 are at home, 12 are institutionalized; 18 of 51 school children attend regular classes, and the others attend special classes. The value of various disciplines (nurse, biochemist, psychologist, pediatrician, social worker, and nutritionist) is noted. (57 refs.) - *E. Kravitz.*

Childrens Hospital of Los Angeles
Los Angeles, California

273 **GREENE, HARRY L.; *SCHUBERT, WILLIAM K.; & HUG, GEORGE.** Chronic lactic acidosis of infancy. *Journal of Pediatrics,* 76(6):853-860, 1970.

A girl with chronic lactic acidosis died at age 16.5 months with central nervous system pathology (extensive spongy degeneration and demyelination) and defective hematopoiesis. Defective pyruvate oxidation and thiamine metabolism are the possible causative factors. Lactate, pyruvate, and α-ketoglutarate levels were elevated in the blood and urine. There were nuclear cataracts. A biopsy revealed a fatty liver. Comparison of the present case with similar cases revealed no definitive etiologic information. (38 refs.) - *E. Kravitz.*

*The Children's Hospital
Cincinnati, Ohio 45229

274 **SUSTER, PHILLIP; & PAALA, JUSTA V.** Pseudo vitamin D-deficiency rickets. *Journal of Pediatrics,* 76(6):937-939, 1970.

A case report of a small boy is presented in which characteristics of both vitamin D-deficiency and vitamin D-resistant rickets were present. The earliest symptoms included nighttime irritability and delayed motor development. Moderate doses of vitamin D (10,000-50,000 units/day) produced no significant therapeutic response. Calcium or phosphate adjunct therapy was of no value. Improvement finally resulted from continuous treatment with very large doses of vitamin D (150,000-200,000 units/day). There was normal mental development. (14 refs.) - *E. Kravitz.*

Fitzsimons General Hospital
Denver Colorado 80240

275 **YEUNG, C. Y.; LAI, H. C.; SIN, W. K.; & * LEUNG, N. K.** Fluorescent spot test for screening erythrocyte glucose-6-phosphate dehydrogenase deficiency in newborn babies. *Journal of Pediatrics,* 76(6):931-934, 1970.

The fluorescent spot test was evaluated as a screening method for the detection of red cell glucose-6-phosphate dehydrogenase (G-6-PD) in 447 jaundiced newborn Chinese. This test depends on the fact that reduced triphosphopyridine nucleotide, resulting from the action of G-6-PD on triphosphopyridine nucleotide, fluoresces in ultraviolet light. The absence of G-6-PD results in no fluorescence. Sixty of the 447 Ss tested had no red cell G-6-PD. The fluorescent spot test correlated with G-6-PD activity in 100% of hemizygotic male babies, but it detected G-6-PD deficiency in only 20% of heterozygous or homozygous females; there were no false positives. (8 refs.) - *E. Kravitz.*

*Queen Mary Hospital
Hong Kong

276 **SPIRO, ALFRED J.; HIRANO, ASAO; BEILIN, REBECCA L.; & FINKELSTEIN, JORDAN W.** Cretinism with muscular hypertrophy (Kocher-Debre-Semelaigne syndrome): Histochemical and ultrastructural study of skeletal muscle. *Archives of Neurology,* 23(4):340-349, 1970.

Pretreatment histochemical and ultrastructural studies of muscle biopsy specimens of 2 children with cretinism showed type I atrophy, abnormalities in oxidative enzymatic activity, accumulation of glycogen, amorphous crescents in the subsarcolemmal area, and distention of the sarcoplasmic reticulum in the S with muscular hypertrophy (Kocher-Debre-Semelaigne syndrome) but no observable abnormalities in the S with normal muscle development. In the former S, treatment with desiccated thyroid relieved the muscular abnormality; however, the child remained severely retarded. The latter S improved dramatically following a similar treatment. Radioactive iodine

uptake studies showed enzymatic defects in thyroid hormone formation for both Ss. Since studies of induced hypothyroidism in animals have shown that alterations occur only after a latent period and that lesions become more severe with time, the degree of abnormalities in hypothyroid patients may be a function of both degree and duration of thyroid dysfunction. (53 refs.) - *M. S. Fish.*

Albert Einstein College of Medicine
Bronx, New York 10461

277 **BELL, WILLIAM E.; SAMAAN, NAGUIB A.; & LONGNECKER, DANIEL S.** Hypoglycemia due to organic hyperinsulinism in infancy. *Archives of Neurology*, 23(4):330-339, 1970.

Differentiation of idiopathic hypoglycemia due to islet cell hyperplasia or adenoma is very difficult; however, if brain damage is to be prevented, prompt surgery is warranted when medical therapy cannot maintain adequate blood glucose levels. One case of hyperinsulinism due to islet cell hyperplasia in a 3½-month-old male was not relieved adequately after removal of 80% of the pancreas, and although the S was maintained on diazoxide, retardation progressed and additional pancreatic tissue was removed in a second operation to avoid an indefinite period of drug therapy. The S achieved normal blood glucose levels on a general diet; however, at 30 months, he had marked intellectual and motor retardation. A second S, a 5-month-old girl, had recurrent seizures, lethargy, irritability, evidence of brain disease, and marked leucine sensitivity. A benign islet cell adenoma was removed, but the S died the next day of a small bowel infarction. (76 refs.) - *M. S. Fish.*

University Hospitals
Iowa City, Iowa 52240

278 **DUDLEY, ALDEN W., JR.; & HAWKINS, HAL.** Mineralization of the central nervous system in pseudopseudohypoparathyroidism (PPH). *Journal of Neurology, Neurosurgery and Psychiatry*, 33(2):147-152, 1970.

A clinical and post-mortem study of 2 sibs from a first-cousin marriage [one, a 39-year-old female diagnosed with pseudopseudohypoparathyroidism (PPH) and the other, a 33-year-old male with either PPH or pseudohypoparathyroidism (PH)] lends support to previous reports that PH may convert to PPH. The features associated with both diseases (significant family history, short stature, round face, MR, obesity, short metacarpal and/or metatarsal bones, calcification of the basal ganglia, and convulsions) were mostly present in both Ss. The lack of data on serum calcium concentrations (normal for PPH, low calcium and high phosphorus for PH) for both Ss during childhood allows the possibility that both had been in the PH stage previously, during which time the female S (later diagnosed with PPH) may have developed calcification. PH is diagnosed more often during childhood. Post-mortem examination of this S disclosed bilateral mineralization of the globus pallidus and dentate nuclei and generalized atrophy of the cerebral hemispheres and cerebellum, the latter accounting for the progressive severity of the MR. A recessive mode of inheritance is suggested by the relationship of the parents and the presence of other normal siblings. (43 refs.) - *M. S. Fish.*

University of Wisconsin
Madison, Wisconsin 53706

279 **HOSSAIN, M.** Neurological and psychiatric manifestations in idiopathic hypoparathyroidism: Response to treatment. *Journal of Neurology, Neurosurgery and Psychiatry*, 33(2):153-156, 1970.

Treatment of 2 cases of idiopathic hypoparathyroidism by maintaining serum calcium in the normal range resulted in the alleviation of symptoms, indicating a specific and likely causative relationship between the symptoms and serum calcium levels. One S, a 54-year-old female, developed dementia and chorea, the latter being a rare manifestation of this disease. Of the various drug treatments attempted in order to control the symptoms, only maintenence of serum calcium levels at approximately 9-10 mg/100 ml was successful. The other S, aged 16 years, had epileptic attacks which occur in about 40-50% of patients with idiopathic hypoparathyroidism. Reduction in serum phosphorus and increase in serum calcium was accomplished by administration of dihydrotachysterol, and the convulsions ceased, even after withdrawal of the anti-epileptic

therapy. The mental impairment of both Ss was reversed by the calcium therapy. (17 refs.) - *M. S. Fish.*

General Infirmary
Leeds, England

280 **BORDIUK, JOSEPH M.; LEGATO, MARIANNE J.; *LOVELACE, ROBERT E.; & BLUMENTHAL, SIDNEY.** Pompe's disease: Electromyographic, electron microscopic, and cardiovascular aspects. *Archives of Neurology*, 23(2):113-119, 1970.

Characteristic changes in the electromyogram can indicate abnormal accumulations of glycogen in muscle and, in a clinical context, are diagnostic for type II glycogenosis (Pompe's disease). Electron microscopic and electromyographic studies of a male child who died of Pompe's disease at the age of 6 months revealed that cardiac failure was caused by primary myocardial dysfunction resulting from massive replacement of the myocardial cells by glycogen. The clinical symptoms of this disease, apparently inherited as an autosomal recessive gene, are characterized by generalized muscular hypotonia and central nervous system and myocardial dysfunction, apparently due to absence of acid maltase which allows the accumulation of excessive amounts of normal glycogen. Electron microscopic studies suggest that the abnormal myocardial performance is caused by replacement of the content of the myocardial cell (except for the nucleus and mitochondria) by glycogen, followed by hypertrophy and disruption of the contractile units of the cells. (12 refs.) - *M. S. Fish.*

Neurological Institute
710 West 168th Street
New York, New York 10032

281 **GRANT, D. B.; & BARBOR, P. R. H.** Islet-cell tumour causing hypoglycaemia in a newborn infant. *Archives of Disease in Childhood*, 45(241):434-436, 1970.

In an infant girl with an islet-cell tumor causing severe hypoglycemia soon after birth, frequent feeding failed to control the hypoglycemia and treatment with diazoxide and chlorothiazide was begun. With persisting hypoglycemia, her dietary leucine was restricted, but this too was ineffective and she continued to have convulsions. She showed no change in head circumference (only 38.5 cm when first seen) and little evidence of mental development. At 14 weeks, a laparotomy and partial pancreatectomy revealed an islet-cell tumor in the resected tissue. Subsequently, she showed continued improvement, and by age 32 weeks, motor and social behavior and mental development were normal. Clinical features suggested excessive insulin secretion as responsible for the hypoglycemia. Failure to respond to diazoxide may be considered almost diagnostic of an islet-cell tumor in infants. (12 refs.) - *B. Berman.*

Queen Elizabeth Hospital for Children
London E2, England

282 **BOTT, D. E.; HOPLEY, P. J.; & LEACH, R. H.** Suspending agents in medicaments as possible sources of galactose to galactosaemic child. *Archives of Disease in Children*, 45(241):436-437, 1970.

Treatment of tragacanth, acacia, agar, and carrageenan (complex galactosides used in preparing liquid medications, foods, and confectionery products) with α-amylase and human disaccharidases failed to release free galactose (the hydrolysates were examined by thin-layer chromatography). Consequently, unlikely to produce free galactose for gastrointestinal absorption, they may safely be used in treating galactosemic children whose diet must exclude galactose. The one exception might be gastroenteritis in which hydrolyzation of the small-intestinal gums, where absorption occurs by bacterial degradation, is a possibility. (2 refs.) - *B. Berman.*

Children's Hospital
Birmingham, England

283 **FURTH, EUGENE D.; AGRAWAL, RAM B.; & PROPP, RICHARD P.** Secretion of iodoalbumin and iodoprealbumin by a congenital goiter containing thyroglobulin and the iodoalbumins. *Journal of Clinical Endocrinology and Metabolism*, 31(1):60-69, 1970.

Detailed studies of a 33-year-old MR woman with congenital goiter support the hypothesis of in-

trathyroidal iodination of serum proteins due to conditions of thyroid hyperfunction and/or hyperplasia. Small at birth, with subsequent retardation of growth and mental development and no history of family thyroid disease, the S presented circulating iodoalbumin and iodoprealbumin and a thyroid gland containing both thyroglobulin and the iodoalbumins. Except for thyroid function, all laboratory data were normal. Total serum iodine and protein-bound iodide (PBI) studies were performed, and thyroidal radioactivity was determined. Following administration of ^{125}I, the accumulation rate and disappearance of thyroidal and serum radioactivity were checked for 15 days preceding total thyroidectomy (microscopic examination having revealed a colloid goiter). After removal of the thyroid, the $PB^{127}I$ and radioiodine disappeared from the serum with rates similar to those of serum albumin. Findings indicated that S's thyroid could synthesize thyroglobulin (but could not release its active thyronines), and could take up, iodinate, and release serum albumin and prealbumin. The presence of a congenital goiter with elevated plasma thyrotropin suggested that some form of hyperplasia or hyperfunction may be common to all thyroidal disorders. The primary cause of the goiter may have been a deficiency or absence of protease activity. No distinctive differences were found between the circulating and thyroidal albumins. High concentrations of prealbumin in the thyroid suggested a possible mechanism for selective uptake or iodination of circulating prealbumins by the gland. (53 refs.) - *B. Berman.*

Albany Medical College of Union University
Albany, New York 12208

284 NEUFELD, ELIZABETH F.; & FRATANTONI, JOSEPH C. Inborn errors of mucopolysaccharide metabolism. *Science*, 169(3941):141-146, 1970.

The severest and best known of the inborn errors of mucopolysaccharide metabolism is Hurler's syndrome, in which an extraordinary appearance emerges after steady physical and mental deterioration (MR being prominent), with the brain damaged by cellular defects and hydrocephalus. Hunter's syndrome is somewhat milder, with variable MR. Hurler's is transmitted as an autosomal recessive; Hunter's is sex-linked. Sanfilippo's syndrome resembles both, but MR is severe. Of unknown frequency, these disorders ultimately show elevated mucopolysaccharides excreted in the urine and accumulated in many tissues. Of the 2 compounds involved in the disorders (chondroitin sulfate B and heparitin sulfate), little is known of their metabolism or degradation. Both are normal, but minor, connective tissue constituents. Structure of the cell and the stored and excreted polysaccharide suggest that mucopolysaccharides are not completely degraded to units small enough for return to the metabolic pool; this raises questions about their chemical integrity. What is clear is that the disorders are inherited as recessive traits, which explains the complete normalcy of carrier parents. The discovery of redistribution of lysosomal-enzyme activity has shown that metabolic abnormality in one area carries over into other distant areas, and some clinical signs may be caused by a far-removed metabolic disturbance. (43 refs.) - *B. Berman.*

National Institute of Arthritis
and Metabolic Disease
Bethesda, Maryland 20014

285 YU, J. S.; ADAMS, B.; & O'HALLORAN, MARY T. Studies in the tyrosine metabolism of phenylketonurics. *Australian Paediatric Journal*, 6(4):215-217, 1970.

Oral administration (after an overnight fast) of l-tyrosine to 10 phenylketonuric (PKU) children, 11 parents of PKU children, and 6 normal controls revealed that the serum-tyrosine levels of PKU children were lower than those of controls but higher than those of the parents. Normals showed higher values throughout the tests but did not reveal consistently greater increments in serum tyrosine increases above the base level. Metabolism of exogenous tyrosine in PKU showed no abnormality. (13 refs.) - *B. Berman.*

University of Sydney
Sydney, Australia

286 INZER, LENORE C. A study of nutrition in pregnancy. *Journal of School Health*, 40(8):392-395, 1970.

Evidence is conclusive that the fetus suffers if the mother's diet is deficient, and as pregnancy advances, requirements for proteins, minerals, and vitamins increase. A study of 66 pregnant women

showed that their newborns shared the maternal iron deficiency. Of 404 indigent pregnant women in rural Iowa, 44% was inadequately nourished; their increased prematurity was correlated with their nutritional status. Studies with maternal rats have shown that dietary deficiencies in zinc and manganese resulted in fetal defects despite adequate storage of the minerals in the maternal body. A sound foundation for the baby's growing body requires a maternal diet containing all the needed nutritional ingredients. An in-depth study of 12 Mexican-American families in Abilene, Texas (annual income, $1500-$7000; family size, 6-16 children) disclosed a lack of proteins, vitamins, and necessary minerals in the mothers' diets, consequent anemia problems during and after pregnancy, and a variety of physical anomalies in the offspring, including 7 MR children. Underprivileged mothers need access to prenatal clinics for advice on good nutrition. (14 refs.) - *B. Berman.*

818 Harwell Street
Abilene, Texas

287 KIRMAN, BRIAN H. Age and phenylalanine. *Developmental Medicine and Child Neurology*, 12(4):515-516, 1970.

Treatment of phenylketonuria (PKU) has sought to reduce the blood level of phenylalanine by restricting intake, but since excessive limitation may be harmful (faulty myelination being one effect) it is necessary to know the upper and lower tolerance limits viewed in relation to age. In respect to when dietary treatment for PKU should be stopped, a spontaneous reduction in serum-phenylalanine levels occurs with age, which emphasizes the importance of altering dietary intake of phenylalanine with age to assure a proper balance with other amino acids. (13 refs.) - *B. Berman.*

Queen Mary's Hospital for Children
Carshalton, Surrey, England

288 MAPES, CAROL A.; ANDERSON, RICHARD L.; & SWEELEY, CHARLES C. Enzyme replacement in Fabry's disease, an inborn error of metabolism. *Science*, 169(3949):987-989, 1970.

Two hemizygous Ss with Fabry's disease infused with normal human plasma produced a level of plasma ceramide trihexosidase activity that was about 150% of normal. This enzymatic activity declines until, after 7 days, it could not be detected. Plasma galactosylgalactosylglucosylceramide decreased just after the former reached its peak, and then increased beyond initial levels coincident with the quick decrease in enzymatic activity. Decline of enzymatic activity is partially explained by the normal turnover of plasma enzyme and possible incorporation of the enzyme into the tissues or blood-vessel walls. The unexpected increase in ceramide trihexosidase activity is not yet explicable. The results suggest enzyme replacement by plasma infusion as therapy for Fabry's disease; proof of its efficacy will depend on prolonged clinical trials. (17 refs.) - *B. Berman.*

Michigan State University
East Lansing, Michigan 48823

289 KINT, J. A. Fabry's disease: Alpha-galactosidase deficiency. *Science*, 167(3922):1268-1269, 1970.

Assays and measurements (colorimetric and fluorimetric) of homogenates of purified leukocytes from patients with Fabry's disease revealed an absence of α-galactosidase activity in male patients, and normal or higher activity of the other 3 lysosomal enzymes. A mixture of homogenates from a patient and a control did not disclose an inhibitor of this activity, thus supporting a conclusion that glycolipid accumulation in this disease has a terminal α-galactose residue. Since a sex-linked recessive gene transmits Fabry's disease, α-galactosidase activity was evaluated in other family members; in 4 females, presumed to be carriers, it was 15-40% of normal. The assay affords a simple and rapid diagnostic technique in Fabry's disease. (15 refs.) - *B. Berman.*

Department of Pediatrics
Rijksuniversiteit, Ghent, Belgium

290 KURTZ, DONALD L.; & KANFER, JULIAN N. Cerebral acid hydrolase activities: Comparison in "quaking" and normal mice. *Science*, 168(3928):259-260, 1970.

Since altered enzyme levels have been reported in several inborn metabolic errors, an evaluation of

the possibility of changed catabolic activity was made by quantitating the level of certain "lysosomal" acid hydrolases in whole-brain homogenates of adult normal and "quaking" mice (which represent an autosomal recessive mutant with deficient central nervous system myelin). Each determination included boiled enzyme and buffer controls. "Quaking" mouse samples showed a significant decrease in α-mannosidase (suggesting a specific localization of such linkages in myelin macromolecules) and a somewhat lesser decline in aryl sulfatase; other "lysosomal" enzyme activities declined slightly. The relation (in mutant mouse cerebral tissue) between decreased myelin, sphingolipid content, and lessened α-mannosidase activity may reflect the organism's ability to reduce enzymatic levels in response to substrate reduction. (16 refs.) - *B. Berman.*

Massachusetts General Hospital
Boston, Massachusetts 02114

291 **DAVENPORT, JOHN W.** Cretinism in rats: Enduring behavioral deficit induced by tricyanoaminopropene. *Science*, 167(3920):1007-1009, 1970.

Exposure of rats before and after birth to tricyanoaminopropene (TCAP) in sufficient doses to induce cretinism resulted in an irreversible behavioral inadequacy (as measured by performance on automated closed-field maze tests) and arrest of neural maturation like that seen in rats with neonatal cretinism, and similar to the MR of human cretinism. In one experiment, behavior of rats reared on a 1.5 g/kg of mash TCAP dose was compared with behavior shown by control rats fed plain mash. A second experiment compared the effects of a lower TCAP dose (1.0 g/kg), a dose of thiouracil (1.0 g/kg), and a control diet. TCAP facilitated no learning task; in 3 tasks, it induced deficits. Agreement between findings on the tests suggested that early and continued TCAP use produced (by its antithyroid action) permanent deficits in various learning potentials by central nervous system arrest at prenatal or neonatal developmental stages. This interpretation, not confirmed neurohistologically, agrees with human-cretinism data. (17 refs.) - *B. Berman.*

University of Wisconsin
Madison, Wisconsin

292 **EDWARDS, J. H.** Sex ratio in phenylketonuria. *Lancet*, 1(7655):1050, 1970. (Letter)

Under the arbitrary terms for defining phenylketonuria (PKU), a considerable sex influence might be expected on *a priori* grounds, and the quantitative sex difference in PKU occurrence may furnish a useful minimal estimate of those receiving potentially dangerous treatment which they don't require. In addition, the parents of these children may have been wrongly advised of the risk of additional children. Because of the hazards and implications of existing PKU-screening methods, new drastic diagnostic measures are needed to obviate support for current procedures derived from the *apparent* recovery of those who never should have been treated. What is needed is a basic PKU incidence rate (provided by a complete census, in a few areas, of phenylalanine levels for all MR children) against which to measure any incidence increase. (1 ref.) - *B. Berman.*

Birmingham Maternity Hospital
Birmingham 15, England

293 **YU, J. S.; & O'HALLORAN, M. T.** Sex ratio in phenylketonuria. *Lancet*, 1(7657):1174, 1970. (Letter)

In 48 Australian children with classical phenylketonuria (PKU), the male/female sex ratio was 26/22. In 16 infants (10 screened by the Guthrie method, 6 by urine chromatography), the sex ratio was 10/6; however, when separated into classical PKU and hyperphenylalaninemia, the ratio was 3/5 and 7/1 respectively. (2 refs.) - *B. Berman.*

Royal Alexandra Hospital for Children
Camperdown, New South Wales, Australia

294 **HUTTENLOCKER, PETER R.; HILLMAN, RICHARD E.; & HSIA, YUJEN E.** Pseudotumor cerebri in galactosemia. *Journal of Pediatrics*, 76(6):902-905, 1970.

Galactosemia should be considered when confronted with increased intracranial pressure; early diagnosis of galactosemia and initiation of a galactose-free diet may prevent permanent damage of the brain, eyes, and liver. Symptoms include icterus and a bulging fontanelle. Three case reports

of children with galactosemia are presented. Incorrect diagnoses of meningitis were originally made for 2 of these patients. (8 refs.) - *E. Kravitz.*

Yale University School of Medicine
New Haven, Connecticut

295 **HOWELL, R. RODNEY.** Inborn errors of metabolism: Some thoughts about their mechanics. *Pediatrics,* 45(6):901-905, 1970.

Exploration of bacterial genetics may cast light on human genetic errors, but the generalizations must be made with caution. Regulatory defects (normal genes which are not activated) which might be amenable to genetic engineering are common among bacteria, but structural defects (absent or incorrect genetic coding) may be more common in humans. The operon (several enzymes in the same pathway grouped together on the chromosome) can be found in bacteria, but the fine structural analysis necessary to demonstrate this is not possible with human material. Fine and tedious biochemical studies on enzyme activity are necessary to determine if an error represents a qualitative or only a quantitative difference in man, and these studies must be refined before bacterial research can be tested in mammalian cells. (22 refs.) - *E. L. Rowan.*

Johns Hopkins University School of Medicine
Baltimore, Maryland 21205

296 **DRUKKER, A.; SACKS, M. I.; & GATT, S.** The infantile form of Gaucher's disease in an infant of Jewish Sephardi origin. *Pediatrics,* 45(6):1017-1023, 1970.

A Sephardi Jewish infant with hepatosplenomegaly and edema at birth died within 48 hours of intracranial hemorrhage. Autopsy showed typical Gaucher's cells in many organs including liver, spleen, bone marrow, and brain; biochemical investigations showed increased cerebroside in liver and spleen. Parents were consanguineous, and the mother had a difficult obstetric history. The acute infantile form of Gaucher's disease is rare in Jews, especially those of Sephardic origin. (35 refs.) - *E. L. Rowan.*

Shaare Zedek Hospital
Jerusalem, Israel

297 **FRASIER, S. DOUGLAS; HILBURN, JEAN M.; & SMITH, FRED G., JR.** Effect of adolescence on the serum growth hormone response to hypoglycemia. *Journal of Pediatrics,* 77(3):465-467, 1970.

The production of growth hormone in response to hypoglycemia was greater in 32 adolescent institutionalized MRs than it was in 42 preadolescent institutionalized MRs. There was a greater mean serum concentration and higher peak concentration in the adolescent group. The effect of circulating gonadal steroids must be considered in assessing growth hormone response to various stimuli. (12 refs.) - *E. L. Rowan.*

Los Angeles County-University
of S. California Medical Center
Los Angeles, California 90033

MEDICAL ASPECTS - Etiologic Groupings

New growths

298 **FIENMAN, NORMAN L.; & YAKOVAC, WILLIAM C.** Neurofibromatosis in childhood. *Journal of Pediatrics,* 76(3):339-346, 1970.

Review of 46 children with neurofibromatosis shows this to be a chronic, progressive disease with multiple organ involvement. Forty-three % showed signs of disease at birth and 63% by 1 year of age. Cafe-au-lait spots and tumors were the most common findings; ½ of the children also had a positive family history. Central nervous system lesions, retarded development, skull and facial deformities, scoliosis, breast enlargement, seizures,

hemihypertrophy and vascular disease also occurred. Eleven percent developed malignancy. Multidisciplinary management is essential for optimal care in this autosomal dominant disease. (22 refs.) - *E. L. Rowan.*

Children's Hospital of Philadelphia
Philadelphia, Pennsylvania 19146

299 Effect of fetal neuroblastomas on the mother. *Lancet*, 1(7657):1161, 1970.

In 6 mothers whose fetuses were developing neuroblastomas, maternal identifying signs (sweating, pallor, palpitations, hypertension, and tingling in fingers and toes) appeared during the last 6 weeks of pregnancy. The most common of solid childhood cancers, neuroblastomas (first appearing as metabolic deposits) can develop in intrauterine life and reach a mortality peak in the fourth year of life, although they frequently regress spontaneously. The identifying signs may be due to catecholamines released into the maternal circulation. (7 refs.) - *B. Berman.*

300 HABER, BERNARD; KURIYAMA, KINYA; & ROBERTS, EUGENE. L-glutamic acid decarboxylase: A new type in glial cells and human brain gliomas. *Science*, 168(3931):598-599, 1970.

Experimental data suggest the presence of at least 2 forms of L-glutamic acid decarboxylase (GAD) in mammalian tissues. GAD activity has been demonstrated in glial tumors (cerebral gray matter) and in human glial cells grown in culture, gliomas, and white matter. Carbonyl trapping agents significantly inhibit the GAD activity in gray matter but strongly stimulate it in the other tissues. The findings imply that there is a new GAD form which localizes in glial cells and suggest that rapid isotopic GAD assay at surgery might help distinguish glial tumors metastasizing from other sites. (10 refs.) - *B. Berman.*

City of Hope Medical Center
Duarte, California

MEDICAL ASPECTS — Etiologic Groupings

Prenatal influence

301 MOCSARY, P.; GAAL, J.; KOMAROMY, B.; MIHALY, GY.; POHANKA, O.; & SURANYI, S. Relationship between fetal intracranial pressure and fetal heart rate during labor. *American Journal of Obstetrics and Gynecology*, 106(3):407-411, 1970.

Simultaneous measurements in 2 nonviable hydrocephalic fetuses of intracranial and amniotic pressure and of fetal heart rate (FHR) demonstrated the existence of an unexplained intra-fetal pressure-regulating system. After a transabdominal amniocentesis, a polyethylene catheter introduced into the amniotic cavity gave measurements of intra-amniotic pressure. Measurements (made during the first labor stage and under artificially induced high intracranial pressure) showed an FHR fall at an average intracranial pressure of 55 mm Hg (within physiologic limits up to 100 mm). As for the fetal regulatory mechanism, the increase in intracranial pressure during contractions was always less than the amniotic pressure increase; thus, the curves for intracranial and amniotic pressures were not parallel, and the former followed the latter after an approximate 0.05-minute delay. The fetus apparently responds in a defensive way to pressure increase. (14 refs.) - *B. Berman.*

Medical University of Debrecen
Debrecen, Hungary

302 STEVENS, L. H. Appraisal of the state of nutrition of babies of low birth weight. *Australian Paediatric Journal*, 6(2):70-75, 1970.

Of available methods for determining the adequacy of early feedings of low-birth-weight

babies, metabolic-balance studies are more satisfactory than measurement of external body dimensions. Body dimensions which are affected by many influences such as heredity and individual peculiarities cannot serve as a specific index. Also, there is little correlation between body length at 4 weeks and at 1 year. Metabolic balance, although applicable to only a small number, gives greater insight and permits analysis of effects of 2 chief factors controlling weight changes during the first 2 weeks, namely, rapidly changing level of incorporation and adjustments in extracellular fluid volume. This method yields accurate data on unrestrained newborns fed human milk and evaluates the intake (fat, carbohydrate, electrolytes, and minerals) that greatly affects postnatal size and growth alterations. (51 refs.) - *B. Berman.*

University of New South Wales
Paddington, New South Wales, Australia

303 **TURNER, GILLIAN.** A second family with renal, vaginal, and middle ear anomalies. *Journal of Pediatrics,* 76(4):641, 1970. (Letter)

A constellation of renal, vaginal, and middle ear anomalies has occurred in 2 families. In one family, 2 females showed abnormal facies, renal anomalies, vaginal atresia, and middle ear anomalies while 2 neonates died of renal agenesis. In the second family, one female showed abnormal facies, a narrow external auditory meatus, vaginal atresia and renal abnormalities; another neonate died with a history suggestive of renal agenesis; and a third child had hydrocephalus secondary to absence of the foramens of Luschka and Magendie. The pattern is suggestive of a recessive disease lethal to males. (1 ref.) - *E. L. Rowan.*

Grosvenor Hospital, Summer Hill
Sydney, New South Wales, 2130, Australia

304 **GILLES, F. H. & SHILLITO, J., JR.** Infantile hydrocephalus: Retrocerebellar subdural hematoma. *Journal of Pediatrics,* 76(4):529-537, 1970.

Three cases of retrocerebellar subdural hematoma in neonates bring the total number of reported cases to 7; however, this condition may be much more common than previously assumed. A tear in the leaves of free edge of the tentorium may cause subdural bleeding, displacement of the cerebellum, occlusion of the fourth ventricle, and hydrocephalus. Ventriculography shows symmetrical dilatation of the lateral ventricles, enlargement of the third ventricle and aqueduct, and enlargement with an anterior-superior shift of the fourth ventricle with a cutoff of its caudal end. The presenting symptoms are nonspecific and include changes in respiration, cry, and tone. Hydrocephalus without evidence of other malformations should alert the clinician to this potentially correctable lesion. (10 refs.) - *E. L. Rowan.*

Harvard Medical School
Boston, Massachusetts 02115

305 **CHEN, ANDREW T. L.; SERGOVICH, FREDERICK R.; McKIM, JOHN S.; BARR, MURRAY L.; & GRUBER, DINAH.** Chromosome studies in full-term, low-birth-weight, mentally retarded patients. *Journal of Pediatrics,* 76(3):393-398, 1970.

A comparison of 150 full-term, low-birth-weight MR patients and 150 full-term, normal-birth-weight MR patients matched for age, sex, and etiology of MR indicated that the former group had a greater number of chromosomal abnormalities. Among the 18 patients with Down's syndrome in the low-birth-weight group, there were 3 with chromosome anomalies in addition to trisomy 21, whereas none of the normal-birth-weight trisomy 21 patients had additional disorders. There were 12 anomalies (7 numerical and 5 structural) among the remaining 132 low-birth-weight patients and only 3 (2 numerical and 1 structural) in the normal-birth-weight group. Genetic abnormalities do appear to play an important role in fetal growth retardation. (33 refs.) - *E. L. Rowan.*

University of Western Ontario
London, Ontario, Canada

306 **FREIRE-MAIA, N.** A newly recognized genetic syndrome of tetramelic deficiencies, ectodermal dysplasia, de-

formed ears, and other abnormalities. *American Journal of Human Genetics*, 22(4):370-377, 1970.

An apparently previously unreported complex malformation syndrome, including severe limb deficiencies with associated dermatoglyphic abnormalities, is plausibly attributed to the homozygous condition of an autosomal recessive mutation. Two siblings (a boy, a girl and 2 of their brothers who died in infancy) presented at least 14 developmental defects (such as tetramelic deficiencies, hypotrichosus, deformed auricles, abnormal dentition, hypoplastic nipples, and areolae). An EEG abnormality (related to a seizure episode) was most prominent in both frontal areas. Biochemistry indicated excessive urinary tyrosine and/or tryptophane. A non-verbal test demonstrated MR, but this, most likely, derived from cultural and economic deprivation. The syndrome's occurrence in 4 similarly affected individuals in one sibship obviously reflected a genetic etiology. (8 refs.) - *B. Berman.*

Federal University of Parana
Curitiba, Parana, Brazil

307 **TALLENT, MARION B.; SIMMONS, RICHARD L.; & NAJARIAN, JOHN S.** Birth defects in a child of male recipient of kidney transplant. *Journal of the American Medical Association*, 211(11):1854-1855, 1970. (Letter)

A female infant—the first reported birth of an abnormal child whose father had undergone renal transplantation—presented a large upper-lumbar myelomeningocele, bilateral dislocated hips, bilateral talipes equinovarus, flaccid paralysis of both legs, and no sphincter control. The mother had taken no drugs during the pregnancy, and 4 previous pregnancies were normal. The father's immunosuppressive therapy had included prednisone, azathioprine (125 mg/day), and 3 courses of local radiation (1350 rads) to the graft; there were no rejection episodes, and renal function was excellent. Following excision of the myelomeningocele sac, the infant's condition improved; casts have been applied to the dislocated hips, and she is now home doing well. Chromosomal aberration in human cells after azathioprine therapy has been reported by some investigators. (18 refs.) - *B. Berman.*

University of Minnesota
Minneapolis, Minnesota

308 **RAMES, LINDA; WISE, BURTON; GOODMAN, JOSEPH R.; & PIEL, CAROLYN F.** Renal disease with *Staphylococcus albus* bacteremia: A complication in ventriculoatrial shunts. *Journal of the American Medical Association*, 212(10):1671-1677, 1970.

Three cases with characteristic clinical aspects of *Staphylococcus albus* bacteremia induced by ventriculoatrial shunts developed renal disease which proved to be an immunologic response to the shunts. First reports of renal disease associated with infected shunts appeared in 1965; customary signs of renal involvement are hematuria, proteinuria, and azotemia. Each S presented these signs in addition to acidosis and anemia. Other conditions present in one or more Ss included nephrotic syndrome, membranous lesions, proliferative glomerulonephritis, and coarsely granular material in the basement membrane. Kidney involvement, although not very common in patients with ventriculoatrial shunts, should be considered if the prosthesis remains for an extended period. Antibiotics provide temporary relief for the bacteremia and renal pathology; ultimate correction requires removal of the infected shunt. (18 refs.) - *B. Berman.*

University of California Medical Center
San Francisco, California 94122

309 **NASH, D. F. ELLISON.** The impact of total care with special reference to myelodysplasia. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):1-11, 1970.

Recent improvement in the successful treatment of spina bifida has resulted from major advances in a variety of fields of medicine. While early removal of the tumor may not always be necessary, prompt and complete management of associated problems can reduce early mortality from about two-thirds

to one-fifth, and education from nursery school age can assure independent existence of many of the survivors. Urinary retention and incontinence are now dealt with in a variety of ways, including transurethral resection and ileo-cutaneous ureterostomy; ventriculo-vascular shunts for hydrocephalus now can often preserve not only life but intelligence also. Advances in orthopedic surgery, made possible by antibiotics, and developments in limb prostheses have aided in the treatment of skeletal deformities and paraplegia. With early management of these physical defects, supervised nursery education can often begin as early as the age of 2, and providing that the problems of incontinence have been solved, the child frequently can integrate later into a normal school. (6 refs.) - *M. S. Fish.*

St. Bartholomew's Hospital
London, E. C. 1., England

310 **BLAAUW, G.** The dural sinuses and the veins in the midline of the brain in myelomeningocele. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):12-17, 1970.

Blood-engorged skull veins in the brains of children dying with myelomeningocele appear to result from compressed sinuses due to elevated cerebrospinal fluid pressure which causes blood drainage through alternative routes. Examinations were performed on the brains of 52 cases of myelomeningocele (including 48 with hydrocephalus), ages between 1 day and 3 years 11 months. All showed venous abnormalities. Since the dural sinus pressure which rises with cerebrospinal fluid pressure in these cases impairs blood outflow by normal routes, the collateral channels (such as the emissary veins), the inferior petrosal sinus, and the ophthalamic vein become extremely important. These alternative pathways for venous drainage of the brain apparently can develop early in fetal life and are more likely related to developmental malformation in spina bifida than to a direct consequence of hydrocephalus. (5 refs.) - *M. S. Fish.*

Academic Hospital Dijkzigt
Rotterdam, Netherlands

311 **BRISMAN, RONALD; STEIN, BENNETT M.; & JOHNSON, PHILIP M.** Lung scan and shunted childhood hydrocephalus. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):18-23, 1970.

The lung scan is a safe and effective procedure for screening shunted patients for pulmonary emboli. Scans using an intravenous injection of ^{131}I-labeled macroaggregates of human serum albumin (4 micro-curies/kg), on 20 hydrocephalic children with ventriculo-atrial (Pudenz) shunts, revealed 4 cases of moderate or small defects in pulmonary arteriolar perfusion although the patients were asymptomatic and chest X-rays were normal. Repeat scans 2 weeks later showed clearing of the defects in 3 of the patients. Since these 4 patients had received shunts over 3½ years prior to the scans, these findings suggest that shunted patients may be at risk for developing pulmonary vascular complications over a period of several years, a possibility reflected also by observations of other investigators. (10 refs.) - *M. S. Fish.*

Columbia Presbyterian Medical Center
New York, New York 10032

312 **CUDMORE, R. E.; & ZACHARY, R. B.** The renogram and the renal tract in spina bifida. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):24-27, 1970.

The renogram is a useful tool for monitoring children with spina bifida, and results of this procedure correlate well with those of intravenous pyelograms. Over 250 renograms (Hippuran labeled with ^{125}I) were performed on new spina bifida babies and on children with renal tract problems. The procedure was also employed for surgical follow-up, routine examination at 1 year of age, and as a substitute for intravenous pyelograms. Results indicated that normal renogram curves for the infant are similar to those for the adult and that the renogram may indicate deteriorating renal function earlier than the intravenous pyelogram. (No refs.) - *M. S. Fish.*

The Children's Hospital
Western Bank
Sheffield S10 2TH, England

313 **DE LANGE, SA.; & DE VLIEGER, M.** Hydrocephalus associated with raised venous pressure. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):28-32, 1970.

A 16-year-old female with a pulsating tumor behind the left ear was found to have communicating hydrocephalus. Measurement of ventricular and sinus pressures before and after ligation of the external carotid artery showed decrease in pressures in both after the operation and a concomitant decrease in the hydrocephalus. Postoperative examination after 8½ months disclosed a decrease in the size of the frontal horns but not in the occipital horns. A connection between the ventricle size and the existence of an arterial venous shunt with transverse sinus connections appeared likely. (5 refs.) - *M. S. Fish.*

Academic Hospital Dijkzigt
Rotterdam, Netherlands

314 **DRENNAN, JAMES C.** The role of muscles in the development of human lumbar kyphosis. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):33-38, 1970.

Lumbar kyphosis, a deformity commonly associated with myelomeningocele, apparently results from a neuromuscular imbalance due to innervation down to the third and fourth lumbar neural segment. Pathologic findings from 12 anatomical dissections and preoperative radiographic and clinical studies (spontaneous movement and response to faradic stimulation) of 35 newborns with both the kyphosis and myelomeningocele provided data consistent with this observation. Lack of innervation at higher levels does not provide sufficient muscle function to cause the extreme lumbar and hip flexion characteristic of this deformity. In most cases where activity to faradic stimulation was observed down to the third or fourth lumbar neural segment, associated orthopedic deformities of the lower extremities were also noted. (14 refs.) - *M. S. Fish.*

University of Sheffield
Sheffield, England

315 **DUCKWORTH, T.; & BROWN, B. H.** Changes in muscle activity following early closure in myelomeningocele. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):39-45, 1970.

Early closure of the spinal defect of myelomeningocele appears to afford only transitory improvement in muscle activity. Sixteen newborn infants with myelomeningocele were examined for muscle activity by faradic stimulation, electromyographic studies, and clinical observation for spontaneous activity prior to closure of the defect which was accomplished within 24 hours of birth. Follow-up studies showed that 3 Ss with almost normal innervation of both lower limbs maintained the initial level of innervation; however, 3 Ss with almost no spontaneous muscle function and little or no response to faradic stimulation in either lower limb at birth developed no activity after closure, even after 2 years; 9 Ss with faradic response at birth but with little or no spontaneous activity showed gradual improvement in muscle function for the first 2 or 3 months but a gradual decline thereafter to the initial level of activity. One S died before follow-up. Results suggest that clinical judgment alone is adequate to assess muscle function but that significant improvement from early closure does not occur, although the operation does not appear to cause loss of function. (6 refs.) - *M. S. Fish.*

The Children's Hospital
Western Bank
Sheffield S10 2TH, England

316 **ECKSTEIN, H. B.; & MOHINDRA, P.** The defunctioned neurogenic bladder: A clinical study. In: *Studies in Hydrocephalus and Spina Bifida*(symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):46-50, 1970.

Urethral discharge occurs in about one-fifth of the cases of a defunctioned neurogenic bladder; however, irrigation with antiseptic solutions will clear up the discharge in about one-third of such cases, while cystectomy is indicated for the remainder. Of 103 cases (22 males and 81 females) of urinary diversion due to a neurogenic bladder, usually associated with myelomeningocele, 20 of the 90

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survivors had troublesome urethral discharge. Catheterization and irrigation, 3 times at weekly intervals, of the group with discharges, all female, was effective for 8 Ss. The occurrence of this type of infection, while apparently limited to females, has no relation to the age at diversion or the age of the child. The results indicate that routine cystectomy at the time of urinary diversion is not indicated. (2 refs.) - *M. S. Fish.*

Hospital for Sick Children
Great Ormond Street
London, W. C. 1, England

317 **EMERY, JOHN L.; & KALHAN, S. C.** The pathology of exencephalus. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):51-64, 1970.

A conservative approach to exencephalus is important since blind removal of tissue can have lethal consequences. The anatomical features of this deformity were assessed in 18 fully dissected cases, 127 clinical cases, and biopsy of 55 other specimens. The 2 general groups into which these cases fall are the frontal lesions which infrequently contain vital nervous tissue, and exencephalus involving the back of the head which, if of appreciable size, usually contains essential tissues. Risks from the former type mainly involve those of infection. Direct excision and closure in these cases should proceed only after identification of the tissue. These types of lesions probably result from overlying connective tissue defects with herniation of the tectum and then of the cerebellum and cerebral hemispheres, and are usually characterized also by absence of the tentorium and displacement of the lateral sinuses. (19 refs.) - *M. S. Fish.*

Children's Hospital
Sheffield, England

318 **FORBES, MEHROO.** The structure of the bladder in myelomeningocele: A quantitative histological study of the bladder fundus. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):65-88, 1970.

A histological study of muscle and connective tissue in bladders from children with spina bifida and myelomeningocele has disclosed no correlation between age at death or level of the myelomeningocele and the amount of muscle present in the bladder fundus. Materials studied histologically were 100 bladders—50 of them "normal" (from children without renal tract or central nervous system disorders) and 50 from children with spina bifida and myelomeningocele. The age range was from birth to 10 years. Superimposition of the results obtained from the spina bifida bladders upon the "normal" percentile curve provided 4 groups based on quantitative histology: 3 bladders below the tenth percentile (thin walls, reduction in muscular tissue); 15 in the tenth to fiftieth percentile (either histologically normal or having only minor abnormalities); 10 in the fiftieth to ninetieth percentile (significant histological abnormalities, including hypertrophy of muscle bundles); and 22 in the ninetieth to one-hundredth percentile (gross quantitative and muscular abnormalities including muscular hypertrophy and fibrosis). This latter group comprised the best correlation between clinical and histological observations since clinical, radiological, and cystometric techniques can detect these bladders which histologically showed gross abnormalities. (8 refs.) - *M. S. Fish.*

University of Sheffield
Sheffield 10, England

319 **GO, K. G.; *VAN DER VEEN, P. H.; & VAN DEN BERG, JW.** Detection of CSF flow in ventriculo-atrial shunts by cold transfer. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):69-72, 1970.

An improved method for detecting flow of cerebrospinal fluid in ventriculo-atrial shunts utilizes a thermosensitive device which contains 2 thermistors—one placed on the skin directly over the catheter and the reference thermistor placed on the skin nearby. The differences in the 2 recordings, measured by a Wheatstone bridge, provides the temperature of the catheter. When the valve is cooled by the application of ice on the skin over

the valve, cooling of the catheter, as measured by this difference, indicates flow of the fluid. Attempts are underway to estimate quantitatively the rate of flow by further study of this method. (3 refs.) - *M. S. Fish.*

*University of Groningen
Groningen, Netherlands

320 **GRANHOLM, LARS; & SIESJO, BO K.** Signs of tissue hypoxia in infantile hydrocephalus. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):73-77, 1970.

A moderate degree of tissue hypoxia, due to increased cerebrospinal fluid (CSF) pressure which interferes with oxidative metabolism of the brain, occurs in untreated hydrocephalic children. Ss were 9 hydrocephalic children, mean CA of 24 months, and 10 control children, mean CA of 27 months, the latter without obvious neurological diseases. Measurements of pH and pCO_2 (with microelectrodes) and lactate and pyruvate concentrations (by enzymatic methods) of CSF, obtained by lumbar puncture for the control group and ventricular puncture for the experimental group, showed that the majority of the hydrocephalic patients had increased CSF lactate concentrations and that all but 2 had increased lactate/pyruvate ratios. The differences in the mean values were significant ($p<.0.01$). Since the pH, pCO_2 and pyruvate values for the 2 groups were not significantly different, and since both lactate concentrations and lactate/pyruvate ratios were raised for the hydrocephalics, the tissue hypoxia associated with the hydrocephalic state is apparently not due to tissue acidosis. (14 refs.) - *M. S. Fish.*

University Hospital
Lund, Sweden

321 **GRUMME, THOMAS; & TILLEY, EVAN J.** Postnatal echoencephalography in cystic dysrhaphia. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):78-82, 1970.

Echoencephalographic studies (made 2-8 hours after birth) of 36 infants with myelodysplasia have disclosed evidence of ventricular dilatation for all but 2, often in the absence of clinical symptoms of hydrocephalus. From the echoencephalograms were obtained the width of the third ventricle and the brain mantle index (MBI). Of 32 cases of myelomeningoceles, these values indicated hydrocephalus for 31; the remaining case developed the abnormality 6 months later. No clinical signs were present for 23 of the cases. Of 3 cases of meningocele, 2 were shown to be hydrocephalic without clinical signs; the third became hydrocephalic 6 days after removal of the meningocele, but use of the Holter valve relieved the condition. A single case of frontal encephalocele was demonstrated to be hydrocephalic by both the echoencephalogram and the pneumoencephalogram. Management of the myelomingocele cases included shunt operations (Holter-type valve) on 14 (BMI above 3.0; normal range is 2.0-2.2). Of 4 cases with BMI less than 3.0, the operation was unnecessary, since repeated examinations indicated no progression of the condition. Without the operation (not performed on 12 cases for various reasons), progressive hydrocephalus always developed. (17 refs.) - *M. S. Fish.*

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322 **HOLT, R. J.** Bacteriological studies on colonised ventriculoatrial shunts. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):83-87, 1970.

Bacterial colonization of ventriculo-atrial shunts, almost invariably with subgroup *Staphylococcus II*, can be prevented by prophylactic antibacterial therapy at the time of insertion of the shunt, followed by long-term use of fucidin. Of 50 recently examined cases of shunt colonization, 48 were caused by *Staphylococcus II*. Possible routes of contamination include implantation at the time of operation with bacteria coming from the skin of the patient or the surgical team; bacteremia with organisms originating in the intestinal tract or skin; or local trauma caused by the catheter with resultant formation of small thrombi which adhere to the catheter and form the nidus for colonization when a transient bacteremia occurs. Studies with a laboratory model of a shunt and observations by other investigators favor the third possi-

bility, since ascending counter-current infection can readily occur *in vitro* with *Staphylococcus II.* (4 refs.) - *M. S. Fish.*

Queen Mary's Hospital for Children
Carshalton, Surrey, England

323 **JAMES, C. C. MICHAEL.** Fractures of the lower limbs in spina bifida cystica: A survey of 44 fractures in 122 children. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):88-93, 1970.

Fractures of the lower limbs of children with spina bifida cystica occur frequently, particularly where sensation and attached active muscle of the bones are absent. Of 122 observed cases of spina bifida cystica (CA range 9 mos to 12 yrs), 22 (18%) had sustained fractures; however, 28 limbs sustained a total of 44 fractures. Most fractures were in the femur around the knee joint. Because of lack of sensation, most fractures were observed later after callus formation had occurred at the site of the fracture; consequently, the direct causes were largely unknown. Many, however, occurred shortly after removal of plaster fixation. Defective bone structure due to absence of sensation appears to have a causal relation to the incidence of the fractures as does the stage of bone development when sensation was lost. (5 refs.) - *M. S. Fish.*

W. J. Sanderson Orthopaedic Hospital
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324 **LORBER, JOHN; & DE, N. C.** Family history of congenital hydrocephalus. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):94-100, 1970.

The incidence of anencephaly and spina bifida cystica among sibs of patients with primary congenital hydrocephalus is approximately 5 times greater than that expected in the general population. Experimental cases were 187 children (119 boys and 68 girls) with primary congenital hydrocephalus. Of this group, 11 were stillborn. Cases of hydrocephalus associated with spina bifida cystica, cranium bifidum, or events at birth (maternal infection, birth injury, and neonatal meningitis) were not included. The control population was 146 siblings of 70 cases of acquired infantile hydrocephalus. Interviews with parents, examination of siblings or near relations suspected of having congenital central nervous system (CNS) anomalies, and follow-up of family histories disclosed that 13 of 338 viable sibs had major CNS malformations: congenital hydrocephalus (5), spina bifida cystica (4), and anencephaly (4). Sex distribution of the 5 hydrocephalic cases was 4 males and 1 female; however, no male sibs had anencephaly or spina bifida, whereas 6 of the female sibs had one or the other of these disorders as did 2 cases of unknown sex (probably female). These data and those obtained from the index cases indicate a sex-controlled rather than a sex-linked phenomenon. (7 refs.) - *M. S. Fish.*

University of Sheffield
Sheffield, England

325 **LORBER, J.; & LYONS, V. H.** Arterial hypertension in children with spina bifida cystica and urinary incontinence. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6): 101-104, 1970.

Hypertension associated with renal disorders occurs frequently among children with spina bifida cystica, and the incidence increases with age. Of 97 living children with spina bifida cystica, 49 (50%) had high blood pressure readings: raised systolic in 32, raised diastolic in 45, and both raised in 27. In 19, the elevated readings were obtained only once in 3 readings, and in 30, the hypertension was transient. In 17 of this latter group, the elevation was associated with urinary infections (8 cases), renal obstruction (3 cases), or a combination of the two (6 cases), and was relieved by appropriate treatment. Six children were given hypotensive drug therapy. Of 8 other children who died, 6 were hypertensive and 2 died of renal failure. Serial intravenous pyelograms indicated that abnormal blood pressure is frequently associated with renal disorders such as hydronephrosis, pyelonephritis, and a non-functioning kidney. (4 refs.) - *M. S. Fish.*

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Sheffield S10 2TH, England

326 **LUTHARDT, TH.** Bacterial infections in ventriculo-auricular shunt systems. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):105-109, 1970.

Bacterial invasion from the skin during surgery apparently accounts for most of the cases of valve sepsis in hydrocephalic patients. Evaluation of 37 cases (17 of a total of 183 receiving shunts in the author's series, 19 reported in the literature, and another receiving an operation elsewhere) disclosed that the causative agents were *Staphylococcus aureus* (in 10 cases with suppuration and in 4 without local irritation), and *Staphylococcus albus* (in 20 of 26 cases of valve infection without local irritation and in 1 case with wound infection). In 21 cases, septicemia occurred within 10 days of valve insertion. Antibiotic therapy, including direct injection into the valve system, was employed with little success, and shunt removal was necessary in all but 1 of the 17 cases reported in the present series. Management of cases of occlusive hydrocephalus with shunt sepsis has been successful in 2 cases by utilizing the method of Cohen and Callaghan. This involves removal of the distal venous part of the shunt, followed by open drainage until infection has subsided, and then removal of the entire shunt system and simultaneous insertion of a new system into the opposite side. (16 refs.) - *M. S. Fish.*

Universitats-Kinderklinik
78 Freiburg im Breisgau, Germany

327 **NICHOLAS, J. L.; KAMAL, I. M.; & ECKSTEIN, H. B.** Immediate shunt replacement in the treatment of bacterial colonisation of Holter valves. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):110-113, 1970.

Immediate shunt replacement in cases of bacterial colonization of Holter shunts in hydrocephalic patients appears to offer advantages over the delayed replacement procedure. Of a group of 500 living patients with Holter shunts, 57 have been treated for bacterial colonization of the valve during a 5-year period: 10 with pure hydrocephalus, 44 with hydrocephalus associated with spina bifida, and 3 with hydrocephalus associated with an encephalocele. Almost one-half of the entire group had symptoms of bacteremia within 6 months of shunt insertion. Thirty-one patients with a total number of 33 cases of colonization were treated by delayed replacement. Of this group, treatment was successful for 23, 7 died, and 1 had an immediate recurrence of bacteremia. Of 27 patients treated by immediate shunt replacement, the operation was successful for 21, 2 patients died, 2 had infected cerebrospinal fluid at the time of the operation, and 2 had incomplete removal of the colonized shunt. Excluding the latter 4 cases, the failure rate for this operation was 8.7%, compared with 22.6% for delayed replacement. Advantages of immediate replacement include avoidance of ventricular taps, preservation of valuable neck veins, and a reduced period of hospitalization. (No refs.) - *M. S. Fish.*

Queen Mary's Hospital for Children
Carshalton, Surrey, England

328 **NOBLE, T. C.; LASSMAN, L. P.; URQUHART, W.; & AHERNE, W. A.** Thrombotic and embolic complications of ventriculo-atrial shunts. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):114-122, 1970.

Approximately one-half of 143 cases of spina bifida children with ventriculo-atrial shunts have not experienced complications which require the lengthening of the atrial catheter. These results would tend to question the advisability of routine prophylactic revision. Of a total number of 244 cases of spina bifida, 27 were deemed unlikely to survive operative repair and 19 died postoperatively before a shunt could be inserted. Of the remaining 198, 143 were provided with shunts, and of this group, 67 required one or more shunt revisions. The principal serious shunt complications included pulmonary embolization (4), sudden massive thrombosis (3), sudden acute blockage (8), ventriculitis (16), and colonization and septicemia (38). Mortality was 100% for the first 3 complications, 50% for the fourth, and 10.5% for the fifth. Early diagnosis of pulmonary thromboembolism proved difficult since a number of the clinical features of this complication are similar to those of congenital heart disease. Prophylactic lengthening of the atrial catheter was not undertaken, and therapeutic measures were followed

only when symptoms of blockage, infection, or thrombo-embolism appeared. A need exists for a random selection trial to determine when prophylactic or therapeutic lengthening of the catheter is indicated. (5 refs.) - *M. S. Fish.*

Newcastle General Hospital
Newcastle-upon-Tyne, England

329 **HAGEN, A. A.** Formation of 15α-hydroxyestriol from 4-^{14}C-17β-estradiol and 6,7-^{3}H-estriol by an anencephalic. *Journal of Clinical Endocrinology and Metabolism*, 30(6):763-768, 1970.

Intravenous administration of a mixture of 2 purified isotopes (4-^{14}C-17β-estradiol and 6,7^{3}H-estriol) to a male baby born with anencephaly and a multitude of other congenital anomalies demonstrated the S's capacity to form 15α-hydroxylate estrogens and gave insight into the biochemistry of a normal newborn. Conversion to more polar substances of almost 100% of the estradiol and 75% of the estriol indicated extensive metabolization of both isotopes. Although enzyme hydrolysis was unable to extract a considerable portion of the radioactivity, the extractable portion indicated that 15α-hydroxyestriol was the major metabolite of both isotopes and the ^{3}H/^{14}C ratios of this metabolite were evidence that 15α-hydroxylation can precede a 16α-hydroxy group. Of several other identified metabolites, only estriol (8% of injected estradiol being recovered in this form and 23% of injected estriol being unchanged) was of any importance. The role of 15α-hydroxylation of steroids, although not yet explained, may be a fetal protection against biologically significant steroids. (23 refs.) - *B. Berman.*

University of Tennessee
Memphis, Tennessee 38103

330 **HANAWAY, JOSEPH; & WELCH, GARY.** Anencephaly: A review and interpretation in terms of modern experimental embryology. *Diseases of the Nervous System*, 31(8):527-533, 1970.

Recent experimental work suggests that the basic mechanism of anencephaly (a congenital central nervous system malformation unique in the complete absence of the forebrain, characterized also by severe anomalies of the brain stem, spinal cord, cerebral vasculature, meninges, and skull) is maternal hypervitaminosis A. The latter prevents closure of the neural groove and retards skull development by its effects on the cephalic-somite mesoderm. The new evidence, which shows cellular mechanisms of the groove's non-closure and the interruption of neuroepithelial cell mitosis by excess vitamin A, demonstrates that skull and brain fail to form simultaneously. This contradicts the accepted mechanism of an initial exencephalic state, which eventually leads to anencephaly. These conclusions are supported by other research; however, one researcher opposes the theory on various grounds and asserts that "hydrops formation" of the fetal brain is the ultimate cause of anencephaly but fails to give an adequate explanation of hydrops. (41 refs.) - *B. Berman.*

University of Virginia School of Medicine
Charlottesville, Virginia 22901

331 **NOETZEL, H.** Stenosis or atresia of the aqueduct of Sylvius as a cause of congenital hydrocephalus. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):123-126, 1970.

Clinical differentiation between cases of stenosis or atresia of the aqueduct of Sylvius associated with gliosis and those of spongioblastomas of the pons is difficult. Both may be congenital, can produce symptoms in early childhood, and can cause hydrocephalus. Ss were 7 cases of occlusive hydrocephalus caused by stenosis or atresia of the aqueduct; 3 of the cases (all male) of aqueduct malformation were characterized by either atresia or stenosis; in 4 cases (1 male and 3 female) the atresia or stenosis was accompanied by gliosis. The first group included 2 infants born with large heads and on whom were performed shunt operations; one died of meningitis at 18 months, while the other died of respiratory failure at 10 months. Autopsy disclosed irregularly-shaped aqueducts and small aqueductuli. The third member of this group, also born with a large head, was given no treatment and died at 16 years of uremic coma. Autopsy showed a narrowed, irregularly-shaped aqueduct and small aqueductuli. All 3 cases also had a reaction of the surrounding glia. Ss of the second group died at the ages of 36, 22, 20, and

19 years. A central gliosis was found in 3 cases, and a spongioblastoma of the pons in the fourth; all were associated with irregularly-shaped aqueductuli. (4 refs.) - *M. S. Fish.*

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332 **POTTHOFF, P. C.; & HEMMER, R.** The biventricular, the bilateral and the dual-unilateral shunt. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):127-136, 1970.

The use of multiple deviation shunts for the treatment of multiple cavity obstruction in hydrocephalus has been found to be particularly useful for obstruction of the foramina of Monro, a condition which is quite amenable to a definitive diagnosis. Other conditions which are less clear in their physiological development and are less easy to diagnose require further evaluation. Of 19 cases treated by multiple deviation shunts, 14 involved the use of a biventricular shunt when tumors in the region of the foramina of Monro had been diagnosed. Four of the patients died, the conditions of 3 were classified as fair, and 7 were considered well at the time of follow-up. The remaining 5 cases were 2 patients with hydrocephalus unresponsive to unilateral shunts (treated with biventricular shunts), 2 patients with combined hydrocephalus with extensive subdural effusions (1 treated with a bivalvular and 1 with a bilateral shunt), and 1 patient with localized cystic conditions with hydrocephalus (treated with a dual-unilateral shunt). Of these latter 5 cases, 3 have shown improvement and 1 progressed well until death occurred suddenly, probably because the S was not returned for a shunt revision. (14 refs.) - *M. S. Fish.*

University of Freiburg
78 Freiburg, Germany

333 **RALIS, Z.** Muscle morphology in spina bifida hip deformities. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):137-144, 1970.

In simple dislocations, but not in dislocation with anteversion, the atrophy of muscle groups as determined by post-mortem assessment in Ss with spina bifida relates to the type of hip deformity and usually correlates with prior clinical findings. Experimental material was the hips of 22 children with spina bifida who died between the ages of 1 and 8 months. Assessment prior to death included clinical and radiological study and examination of the development of muscle paralysis and hip deformity. Post-mortem examination for the amount of atrophy of each muscle was compared with measurement of muscles of normal infants who died within 6 months after birth. Results showed that anatomical variation of pelvi-femoral muscles appeared to be more common in cases of spina bifida than in normal children. Muscle atrophy ranged from simple atrophy to fatty replacement, and the degree of atrophy related to the state of the hip joint and varied within the same group of muscles. The observed preservation of M. obturator externus in dislocated paralytic hips probably is due to its role in producing and maintaining dislocation and fixed lateral rotation of the hip, particularly when anteversion is present. (26 refs.) - *M. S. Fish.*

University of Sheffield
Sheffield, England

334 **ROBERTS, J. R.; & RICKHAM, P. P.** Craniostenosis following Holter valve operation. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):145-149, 1970.

Considerable destruction of brain tissue may occur in children who develop craniostenosis following valve insertion for the relief of hydrocephalus. The prognosis for these Ss is not good even after successful relief of the craniostenosis. Ss were 8 cases of craniostenosis out of a total of 800 children who were provided with Holter valves for the relief of hydrocephalus. Of the 8, 4 had a myelomeningocele and 4 had primary hydrocephalus. Ages at the time of cranioplasty ranged from 6 to 56 months. Indications for the operation included stationary head circumference,

delayed development, and fusion of sutures, all following valve insertion. Results at follow-up (periods of 14 months to 6 years) indicated that improved skull circumference for 6 and physical and mental improvement for 5 had occurred. One S died at the time of operation, and 2 died from pneumonia. None of the Ss achieved intellectual normality—2 are grossly MR and 2 are suitable for placement in special schools. (4 refs.) - *M. S. Fish.*

Alder Hey Children's Hospital
West Derby, Liverpool, England

335 **SCOBIE, WILLIAM G.; ECKSTEIN, HERBERT B.; & LONG, WILLIAM J.** Bowel function in myelomeningocele. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):150-156, 1970.

Even when rectal and anal sensation is lost and the external sphincter and levator ani are paralyzed, many children with myelomeningocele can achieve satisfactory social continence. Ss were 80 children (28 males and 52 females) with myelomeningocele. Ages ranged from 4½ to 17 years. Questionnaires and examinations to determine the level of the lesion, the extent of limb paralysis, the mental state, the type of institutionalization or school, the nature of bladder and bowel function, and anorectal pressures showed that a direct relation did not exist between bowel function and the extent of lower limb paralysis. Institutionalized children had better bowel function than did those at home. Of the 31 Ss attending normal schools, 6 (19%) had continual soiling problems which often led to exclusion from the school. Four Ss were MR. Almost one-half of the Ss who were incontinent of urine had good bowel control. Of 15 cases tested for anal and rectal pressures, the results indicated that, with an intact internal sphincter and normal yield pressure, about one-half of the patients could, with adequate supervision, achieve satisfactory control. (3 refs.) - *M. S. Fish.*

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Great Ormond Street
London, W.C.1, England

336 **STARK, GORDON; & DRUMMOND, MARGARET.** Spina bifida as an obstetric problem. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):157-160, 1970.

Malpresentations and birth injuries constitute serious complicating factors for infants with myelomeningocele. Ss were 130 infants with myelomeningocele admitted to the hospital when they were less than 24 hours old. Examination of the Ss and of the obstetric data showed that malpresentation (30% breech) and complicated delivery (34%) were common and were due principally to fixed knee extension and a large head, the latter always causing difficulty when the occipitofrontal circumference exceeded 35 cm. Data indicated a high incidence of birth injury, including 10% with a ruptured myelomeningocele. Hypothermia (rectal temperature below 96° F) occurred in 32% of the cases. When radiologic examination was employed, fetal abnormality was not revealed in two-thirds of the cases. The majority of the pregnancies were normal as were most of the infant birth weights. (No refs.) - *M. S. Fish.*

Royal Hospital for Sick Children
Edinburgh 9, Scotland

337 **STAUFFER, U. G.** "Shunt nephritis": Diffuse glomerulonephritis complicating ventriculo-atrial shunts. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):161-164, 1970.

A nephrotic syndrome may develop as a result of infected ventriculo-atrial shunts in the hydrocephalic patient. Of 9 cases (8 reported in the literature and one in the present study) of renal disease complicating an infected ventriculo-atrial shunt, all were found to be anemic, to have proteinuria and hematuria, and to have positive bacterial cultures of cerebrospinal fluid tapped from the valve. Other symptoms were: spiking fever and hepatosplenomegaly in 8 Ss, edema in 7, positive blood cultures in 6, and elevated blood pressure and positive cultures of cerebrospinal fluid in 5. Immunofluorescent studies in a number of these cases were indicative of long-term shunt infection. In the reported case (shunt insertion at 8 months and nephrotic syndrome 36 months

later) shunt removal was followed by disappearance of pathological findings within 4 months. (5 refs.) - *M. S. Fish.*

University Children's Hospital
Zurich, Switzerland

338 **STRUWE, FRIEDRICH E.** Intracranial hemorrhage and occlusive hydrocephalus in hereditary bleeding disorders. In: *Studies in Hydrocephalus and Spina Bifida* (symposium). *Developmental Medicine and Child Neurology*, Supplement No. 22, 12(6):165-169, 1970.

In cases of occlusive hydrocephalus caused by hereditary bleeding disorders, a quick approach, involving substitution of missing plasmatic factors and valve insertion, is necessary in order to avoid permanent cerebral atrophy. Ss were 3 infants, suffering from hereditary coagulopathies, who developed occlusive hydrocephalus following intracranial hemorrhage. Sanguineous cerebrospinal fluid was detected in all Ss as was the absence or insufficiency of plasmatic factors (factor VIII in 2, factor VII in 1) which characterized the hereditary disorders. The missing factors were supplied for all Ss who were also given valves (2 Holter, 1 Pudenz); however, treatment was successful for only 1 S. Failure in the other 2 cases was likely due to delay before the operation and to valve complications including insufficiency and septicemia. Although early occurrence of hydrocephalus is rare in such cases of hereditary bleeding disorders, its development may occasionally occur either as a result of the hemorrhage itself, causing a lesion followed by occlusion of the foramina Magendii and Luschkae, or from the substitution therapy which may surpass fibrinolytic activity of the cerebrospinal fluid and cause clot formation and obstruction of the foramina. (2 refs.) - *M. S. Fish.*

University of Freiburg
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339 **HARBERT, JOHN C.; & ZEIGER, LOUIS S.** Radiation dose in isotope encephalography. *Lancet*, 1(7653):954-955, 1970. (Letter)

The diagnostic value of cisternography in hydrocephalus and in cases of complete spinal block appears to be sufficiently unique and useful to outweigh the risk of radiation exposure. The use of ^{131}I-human-serum-albumin (^{131}I-H.S.A.) in encephalography has caused considerable controversy because of the possible high radiation exposure to the spinal cord. Since the problem appears to center on the methods used to calculate radiation doses, experiments were undertaken to measure isotope concentrations in segmental compartments of the spinal subarachnoid space. Administration of 100 μCi ^{131}I-H.S.A. by lumbar intrathecal injection, followed by measurement with a scintillation camera of isotope distribution at several time intervals, showed that mean values of cumulated activity were 400, 700, and 3,000 μCi-hour for normal, hydrocephalic, and complete spinal blocks Ss, respectively, and 3-7, 7-12, and 5-60 rads, respectively, for total surface absorbed doses, using a range of 10-35 ml/5 inch segment. Because of the steep dose distribution gradient, the use of average absorbed dose of the entire cord volume has no useful meaning. These calculations indicate that in normal and hydrocephalic Ss the dose is moderate, and although it is moderately high in patients with a complete block, it is not greater in magnitude than those frequently encountered during the prolonged exposures required by fluoroscopic and cineroentgenographic techniques. (7 refs.) - *M. S. Fish.*

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340 **FREIRE-MAIA, NEWTON; CAT, IZRAIL; LOPES, V. L. V.; CHAUTARD, ELEIDI ALICE; MARCALLO, F. A.; CAVALLI, I. J.; PILOTTO, R. F.; SCHETINO, MARIA CARMEN; & BEDROSSIAN, A. A. DER.** A new malformation syndrome? *Lancet*, 1(7651):840-841, 1970. (Letter)

A previously unreported syndrome, possibly due to the homozygosity of a rare autosomal-recessive gene, has been reported. Of a sibship of 5 males and 3 females, the syndrome apparently existed for 4 (3 males and 1 female), and only 2 affected and 2 normal sibs (1 male and 1 female, each) were alive and available for examination. Clinical features common for both affected sibs were: extensive bone deficiencies (the girl having no fingers or toes); scarcity of hair over the whole body; large, thin, protruding deformed pinnas; abnormal dentition; hypoplastic nipples; discrete simple goiter; and impaired mental performance.

The male also had sexual underdevelopment, hypoplastic nails, gynecomastia, growth retardation, unilateral incomplete harelip, and EEG abnormalities. The female had electrocardiographic abnormalities. Urinary excess of tryptophan and/or tyrosine was demonstrated by paper chromatography. The parents and the affected daughter had normal karyotypes, and the parents had normal dermatoglyphics; however, the latter was extensively abnormal for both affected children. (1 ref.) - *M. S. Fish.*

Federal University of Parana
Curitiba, Pr., Brazil

341 **KAUFMAN, ROBERT L.; QUINTON, BARBARA; & TERNBERG, JESSIE L.** Polydactyly/imperforate-anus/vertebral-anomalies syndrome. *Lancet*, 1(7651):841, 1970. (Letter)

An 11-hour-old male infant was found to have a hypoplastic left thumb, preaxial polydactyly of the right foot, imperforate anus with a perianal fistula, rib and vertebral anomalies, and a single (right) enlarged, hydronephrotic kidney.The karyotype revealed a normal 46,XY male pattern. The parents were not consanguineous, and the mother had 2 healthy sons by a previous marriage. An operation was performed in which the fistula was excised and an anus was formed; the hypoplastic thumb was tied off. Comparison of this case with a previously reported one in which deletion and polydactyly again appeared in the same patient indicates that the 2 conditions do not likely represent 2 separate syndromes but a single preaxial defect/imperforate anus/vertebral-anomaly syndrome with the preaxial defect being variable. (4 refs.) - *M. S. Fish.*

Washington University School of Medicine
St. Louis, Missouri 63110

342 **ROGERS, K. J.; & DUBOWITZ, V.** 5-Hydroxyindoles in hydrocephalus: A comparative study of cerebrospinal fluid and blood levels. *Developmental Medicine and Child Neurology*, 12(4):461-466, 1970.

The levels of 5-hydroxyindole acetic acid (5-HIAA), the principal metabolite of serotonin, were consistently elevated in the ventricular cerebrospinal fluid (CSF) of 40 children with hydrocephalus. Comparative studies of ventricular and lumbar CSF in 12 children showed that the latter values fall within the normal range despite ventricular elevation. Serum assays for serotonin revealed no differences between hydrocephalics and normals. Although there does appear to be a decrease in the level of 5-HIAA with age, the isolated elevation of ventricular CSF 5-HIAA may be of use in both the diagnosis of hydrocephalus and in the assay of response to treatment. (15 refs) - *E. L. Rowan.*

University of Sheffield
Sheffield 10, England

343 **SUZUKI, YOSHIYUKI; FUJII, TOSHI; & FUKUYAMA, YUKIO.** Hallermann-Streiff syndrome. *Developmental Medicine and Child Neurology*, 12(4):496-506, 1970.

Two additional cases of the Hallermann-Streiff syndrome bring the total number reported in the literature to 58. The primary features are bird-like facies and congenital cataracts. Dental anomalies, dwarfism, other bone and eye anomalies, and MR (in 9 cases) may also occur. A frequent history of abnormal pregnancy and low birth-weight suggests an intrauterine accident as the cause for the syndrome. (16 refs.) - *E. L. Rowan.*

University of Pennsylvania School of Medicine
Philadelphia, Pennsylvania

344 **PAPADATOS, C.; PAPAEVANGELOU, G. J.; ALEXIOUS, D.; & MENDRIS, J.** Serum immunoglobulin G levels in small-for-date newborn babies. *Archives of Disease in Childhood*, 45(242):570-572, 1970.

Serum immunoglobulin G(IgG) levels were compared in 197 infants of normal birth weight and 47 small-for-dates (SFD) infants (birthweight < 2 standard deviations below mean for gestational age). A linear relation exists between log serum IgG levels and gestational age in normal newborns. The same relation held in SFD infants; however, IgG levels were below those expected in normals of equivalent gestational age. At equivalent birthweight, IgG levels were higher in SFD infants than they were in normals. The IgG level in the

newborn results from active placental transfer, and low levels in SFD infants probably indicate placental dysfunction. (17 refs.) - *E. L. Rowan.*

Alexandra Maternity Hospital
Athens (611), Greece

345 van BENTHEM, L. H. B. M.; DRIESSEN, O.; HANEVELD, G. T.; & RIETEMA, H. P. Cryptorchidism, chest deformities, and other congenital anomalies in three brothers. *Archives of Disease in Childhood*, 45(242):590-592, 1970.

Three brothers representing all the male offspring in a family displayed a similar syndrome characterized by severe chest deformities, pulmonary anomalies, agenesis of the testes, hypoplastic musculature, absent subcutaneous fatty tissue, dolichocephaly, and severe MR. There were no chromosomal anomalies, and no consanguinity in the family. Four living sisters were normal, but one, a co-twin of an affected brother, died in infancy. (1 ref.) - *E. L. Rowan.*

State University of Utrecht
Utrecht, Netherlands

346 McNICHOLL, B.; EGAN-MITCHELL, B.; MURRAY, J. P.; DOYLE, J. F.; KENNEDY, J. D.; & CROME, L. Cerebro-costo mandibular syndrome: A new familial developmental disorder. *Archives of Disease in Childhood*, 45(241):421-424, 1970.

The main features of a previously unreported syndrome are MR, palatal defects, micrognathia, and severe costovertebral defects (segmentation of most ribs and fusion of their dorsal ends to the vertebral bodies). The syndrome was found in 3 siblings, one of whom survived. Hypoplasia of the left elbow was present in one case. Parents and a normal sibling appeared to have normal intelligence and did not present abnormal clinical symptoms; also radiological data did not demonstrate abnormalities of the mandible, spine, or thorax. Drugs were not taken during the early months of pregnancy. The cerebro-costo-mandibular syndrome appears to be due to a genetic defect in the absence of detectable chromosomal abnormality. Inheritance is probably autosomal recessive. (7 refs.) - *J. K. Wyatt.*

University College
Galway, Ireland

347 FEDRICK, JEAN. Anencephalus: Variation with maternal age, parity, social class and region in England, Scotland and Wales. *Annals of Human Genetics*, 34(1):31-38, 1970.

Comparison of 491 singleton anencephalic births with 16,994 control births in England, Scotland, and Wales revealed a strong regional distribution and a rise in incidence of anencephalic births with falling social class. The maternal age/parity distribution indicated that the older the primapara, the lower the incidence and the older the multipara, the higher the incidence. Regions with the highest incidence were the north, northwest, and southwest of England and Wales. Lowest incidence was in the eastern and southeastern regions of England. Highest incidences were among mothers below age 20 and over age 45. Regional effect and maternal age/parity were generally not related to social class. (25 refs.) - *J. K. Wyatt.*

University College
London, England

348 HAY, SYLVIA; & WEHRUNG, DONALD A. Congenital malformations in twins. *American Journal of Human Genetics*, 22(6):662-678, 1970.

Incidence of anencephaly, hydrocephaly, and congenital heart disease was substantially higher in twins from like-sexed pairs than in twins from unlike-sexed pairs or in single births. Both types of twins evidenced a higher rate of positional foot defects and a lower incidence of Down's syndrome than singletons. There was a particularly low incidence of Down's syndrome in like-sexed twins. Data were obtained from 96,000 live-birth certificates with congenital malformations. There were approximately 2,000 twins in the sample. Males in like-sexed pairs of twins had a generally higher incidence of malformations than males in unlike-sexed pairs or single births. Concordance rates imply a stronger genetic component in clefts,

polydactyly, and positional foot defects than in central nervous system malformations, reduction deformities, or congenital heart disease. The genetic component of Down's syndrome seemed particularly high. There appeared to be an increased incidence of malformation in the co-twins of individuals with selected malformations. Placental anastomoses may be an important factor in the occurrence of anencephaly, hydrocephaly, and congenital heart disease. The occurrence of Down's syndrome among like-sexed twins may be related to an early loss of affected monozygotic embryos. (24 refs.) - *J. K. Wyatt.*

National Institutes of Health
San Francisco, California 94118

349 **DODGE, PHILIP R.; & FISHMAN, MARVIN A.** The choroid plexus—Two-way traffic? *New England Journal of Medicine*, 283(6):316-317, 1970. (Editorial)

Development of new techniques, especially ventriculocisternal perfusion, and the availability of isotope tracers has disclosed that only one-fourth to one-third of cerebrospinal fluid (CSF) formation can be attributed to the choroid plexus. Although Milhorst *et al.* have demonstrated reductions (by 25-75%) in intraventricular-albumin turnover rate following plexus excision in hydrocephalic infants, it must not be assumed this applies to non-pathologic humans. Since plexectomy did not prevent hydrocephalic progression in most cases, CSF formation and absorption and maintenance of ventricular volume in hydrocephalus remain unexplained. (6 refs.) - *B. Berman.*

No address

350 **MILHORAT, THOMAS H.; MOSHER, MICHAEL B.; HAMMOCK, MARY K.; & MURPHY, CORNELIUS F.** Evidence for choroid-plexus absorption in hydrocephalus. *New England Journal of Medicine*, 283(6):286-289, 1970.

Intraventricular injection of radioiodinated (^{131}I) serum albumin in 8 hydrocephalic infants revealed that, in hydrocephalics, the choroid plexus not only secretes but apparently absorbs cerebrospinal fluid (CSF). Isotope changes in ventricular fluid, blood, and urine—assessed over a 72- to 96-hour interval—revealed significant blood absorption of albumin, and, at subsequent excision of the choroid plexus, that organ and brain parenchyma showed sizeable isotope concentrations. Choroid-plexus excision significantly lowered the rate of albumin turnover as well as blood-CSF and urine values, suggesting that, in hydrocephalus, the excision reduces transventricular absorption of albumin. Ventricular enlargement, however, continued after surgery with no signs of diminished hydrocephaly. The mechanism of choroid-plexus absorption remains uncertain. (13 refs.) - *B. Berman.*

National Institute of Neurological Diseases and Stroke
Bethesda, Maryland 20014

351 **MAHLOUDJI, MOHSEN; DANESHBOD, KHOSROW; & KARJOO, MANOUCHEHR.** Familial spongy degeneration of the brain. *Archives of Neurology*, 22(4):294-298, 1970.

A case is cited of a 14-month-old girl with familial spongy degeneration of the brain. Appearing normal at birth, the S, at age 1 month, was irritable and continually crying and later became floppy with progressive leg stiffness, blindness, deafness, and steady deterioration. At autopsy, the S showed typical extensive brain pathology. The parents, who were first cousins, were healthy; of their 9 children 3 had died of a disease similar to the patient's. The clinical picture of this disease is head floppiness, arrested mental development, hypotonia replaced by spasticity, head enlargement, and frequent grand-mal seizures. Normal, first-cousin parents and mixed sexes of affected children suggest autosomal-recessive inheritance for this distinct nosological entity. Jewish extraction in a disproportionate number of cases suggests occurrence of a mutation some centuries ago. (15 refs.) - *B. Berman.*

Nemazee Hospital
Shiraz, Iran

352 **MAYHER, WILLIAM E.; & GINDIN, R. ARTHUR.** Head bobbing associated with

third ventricular cyst. *Archives of Neurology*, 23(3):274-277, 1970.

A 2½-year-old Negro boy is the third reported case of the "bobble-head doll syndrome" associated with a third-ventricle congenital cyst. Hospitalized for poor development, a shaking head motion (which first appeared at 7 months), and enlarged head, the S was unable to walk and had poor vision. He occasionally spoke a few simple words but made no response to verbal command. EEGs and brain scan were normal, but X-rays of the extremities showed considerable demineralization. Surgical exploration of the third ventricle and excision of a cyst terminated the head bobbing and rhythmic movements of the upper extremities. He died 5 months after the craniotomy. Clinical and histologic data suggested the cyst was congenital and not colloidal. MR, memory loss, somnolence, and other sequelae are commonly associated with third-ventricle cysts but are not specific for such lesions. (5 refs.) - *B. Berman.*

Medical College of Georgia
Augusta, Georgia 30902

353 **ADELOYE, A.; SINGH, S. P.; & ODEKU, E. L.** Stridor, myelomeningocele, and hydrocephalus in a child. *Archives of Neurology*, 23(3):271-273, 1970.

A case is cited of an infant with laryngeal stridor (born with a myelomeningocele and, after a few weeks of life, showing progressive hydrocephalus that exacerbated the stridor) in whom a functioning shunt operation (ventriculo-peritoneal) employing a Till-Dahl-Wade valve provided dramatic relief for the respiratory distress. Hospitalized at age 4 months, the S had shown, on direct laryngoscopy, bilateral abductor vocal-cord paralysis and, by air ventriculography, marked hydrocephalus. Ventricular tapping through the anterior fontanelle gave only slight relief. After surgery, the fontanelle and the myelomeningocele sac became flat and soft; a week later, the stridor was gone and the myelomeningocele was excised. Shunt procedures, in these cases, are more successful than suboccipital and high cervical decompression in restoring laryngeal function. (14 refs.) - *B. Berman.*

No address

354 **PRICE, DONALD L.; DOOLING, ELIZABETH C.; & RICHARDSON, EDWARD P., JR.** Caudal dysplasia (caudal regression syndrome). *Archives of Neurology*. 23(3):212-220, 1970.

An infant boy, delivered prematurely by cesarean section to a 27-year-old primigravida (who had had diabetes mellitus for 10 years), presented with caudal dysplasia (a congenital malformation with developmental vertebral and corresponding cord-segment failure) with more extensive neuropathological analysis than previously reported. When hospitalized, the S was plethoric, edematous, and jaundiced and showed an increase in subcutaneous tissue. At autopsy, the brain was of normal gestational weight, but it showed extreme hypoplasia and dysplasia of the cord area normally displaying lumbosacral enlargement. Extremely atrophied spinal roots and nerves as well as defective innervation of the lower limbs' distal musculature were similar to abnormalities experimentally produced by insulin, trypan blue, and hypoxia. The dysplastic changes suggested fetal developmental derangement, with the mother's diabetes (and high insulin needs) as possibly etiologic. (19 refs.) - *B. Berman.*

Massachusetts General Hospital
Boston, Massachusetts 02114

355 **MILHORAT, THOMAS H.; CLARK, RONALD G. ; HAMMOCK, MARY K.; & McGRATH, PHILIP P.** Structural, ultrastructural, and permeability changes in the ependyma and surrounding brain favoring equilibration in progressive hydrocephalus. *Archives of Neurology*, 22(5):397-407, 1970.

Obstruction of the fourth ventricle and caudal aqueduct in 11 rhesus monkeys, plus electron-microscopic examination, confirmed a previous observation that such an event causes acute and precipitous ventricular enlargement (hydrocephalus). Although the obstruction remained complete, the rate of enlargement (after 3 to 6 hours) declined simultaneously with the appearance, in the ependyma and the surrounding brain, of structural changes (surface stretching, cell flattening and compression, disruption and tearing of ependymal epithelium, white-matter edema, and early fine-structure changes). In addition, the surrounding brain showed increased occurrence of

intraventricular dyes, particularly in areas of greatest damage, reflecting the increased ventricular pressure accompanying the pathological changes in the wall of the ventricle. The decline in ventricular-enlargement rate is probably due chiefly to these changes which, in addition, facilitate the onset of a more moderate, chronic rate. These changes alone, however, are not able to halt the pathological process when ventricular obstruction is complete and fixed. (8 refs.) - *B. Berman.*

National Institute of Neurological
Diseases and Stroke
Bethesda, Maryland 20014

356 **ELLER, J. L.; & MORTON, J. M.** Bizarre deformities in offspring of user of lysergic acid diethylamide. *New England Journal of Medicine*, 283(8):395-397, 1970.

A female infant with a rare combination of severe congenital deformities was born to a white female who had used lysergic acid diethylamide (LSD) about the time of conception. The deformities bear similarities to those recently described as spondylothoracic dysplasia. Six infants born of Puerto Rican parents, 4 of whom were products of consanguineous marriages, exhibited remarkably similar clinical and roentgenographic features to those of the S. The etiology of such deformities is uncertain but likely involves an autosomal recessive mode of inheritance in some cases. The use of LSD by the S's mother is of interest since there are reports of increased frequency of chromosomal aberrations in LSD users as well as in their offspring. (8 refs.) - *C. L. Pranitch.*

University of Colorado Medical Center
Denver, Colorado 80220

357 **FRIEDMAN, SIDNEY; & SCHIEKEN, RICHARD M.** Perforation of right atrial wall by polyethylene tubing: Report of two unusual cases. *Journal of Pediatrics*, 76(6):923-925, 1970.

Two rare case reports are presented of children in whom plastic tubing caused atrial punctures; preventive measures are suggested. In one case, a piece of tubing was detached accidently from its external source and traveled to the heart; this probably happened when an intravenous tube was removed. Cyanosis and respiratory difficulty occurred. Gentle handling and marking of the catheter tip are suggested as preventive measures. In the second case, who had a ventriculovascular shunting apparatus in place to control hydrocephalus, the blunt (but firm) tip of a portion of the fixed catheter punctured a cardiac chamber wall. (7 refs.) - *E. Kravitz.*

Children's Hospital of Philadelphia
Philadelphia, Pennsylvania

358 **NAVARRETE, V. N.; PANIAGUA, H. E.; ALGER, C. R.; & MANZO, P. B.** The significance of metabolic adjustment before a new pregnancy: Prophylaxis of congenital malformation. *American Journal of Obstetrics and Gynecology*, 107(2):250-253, 1970.

Early glucose metabolic disorders can be detected by the provocative triamcinolone glucose tolerance test (TGTT) and the condition "normalized" after approximately 8 months of treatment. A total of 188 women treated for abnormal TGTTs became pregnant during the time of follow-up. The patients who started and ended pregnancy with normalized TGTTs had no congenitally malformed infants and a low incidence of abortions (11.5%) and complications. The group whose TGTT was normal at the start of pregnancy but became abnormal also had no malformed infants, but 45% of these pregnancies ended in stillbirth or abortion. If the TGTT were abnormal and remained so throughout pregnancy, then 10% of the infants was malformed and only 35% of the pregnancies and babies was normal. When the TGTT became normalized during pregnancy, the malformation rate was still 10%, but 75% of infants was normal. Early diabetics should be detected and controlled before they undertake a pregnancy. (9 refs.) - *E. L. Rowan.*

No address

359 **FEDRICK, JEAN.** Anencephalus and the local water supply. *Nature*, 227(5254):176-177, 1970. (Letter)

Water softness may be associated with a higher incidence of anencephalus and spina bifida, etiologically similar malformations which may have environmental, rather than genetic, origins. In the

United Kingdom, the incidence of anencephalus was shown to have negative correlation with total water hardness, pH, calcium content, and, to some degree, sodium content in areas where published studies of incidence were available. No correlation was found with chlorine and magnesium content or with the calcium/magnesium ratio. Examination of available United States data showed that water hardness was 88.6±11.2 and 156.7±16.5 ppm in areas of high and low incidence, respectively, of spina bifida. Since the incidence of deaths from cardiovascular disease has been previously correlated with water softness, further studies are needed to determine if these effects might be related, in part, to calcium deficiency in soft water, to the increased ability of soft water with a low pH to dissolve metal from pipes, or to other factors. (20 refs.) - *M. S. Fish.*

University College
London, England

360 **TALWALKER, VASANT C.; & DASTUR, DARAB K.** "Meningoceles" and "meningomyeloceles" (ectopic spinal cord): Clinicopathological basis of a new classification. *Journal of Neurology, Neurosurgery and Psychiatry*, 33(2):251-262, 1970.

A series of clinicopathological observations made as a result of 51 operations for cases of spinal meningoceles has provided a basis for reclassification of these deficits. The new classification, based primarily on the distinction between whether or not exposure of the spinal cord was the main feature, suggests that the term "meningocele" (found in 21 of the cases) includes simple meningocele (4 cases), meningocele with aberrant neural tissue (4 cases), meningocele with external fistula (2 cases), meningocele with hemangioma (1 case), meningocele with tethered root (5 cases), and meningocele with tethered cord (5 cases). In place of meningomyelocele, the term "ectopic spinal cord" (which describes the main feature of the lesion) would comprise usual variety (22 cases), ectopic spinal cord with tethering (7 cases), and total ectopia of the cord (1 case). The new classification is responsive to the desirability of distinguishing differences in the anatomical lesion, the neurological deficit, and the nature of the surgical intervention. (14 refs.) - *M. S. Fish.*

J.J Group of Hospitals
Bombay-8, India

361 **APPENZELLER, OTTO; SNYDER, RUSSELL; & KORNFELD, MARIO.** Autonomic failure in hydrencephaly. *Journal of Neurology, Neurosurgery and Psychiatry*, 33(4):532-543, 1970.

Evidence of central failure of autonomic function in patients with hydrencephaly in contrast to observed normal autonomic functions in hydrocephalic Ss suggests that autonomic failure of cerebral origin may occur for some patients with motor and mental retardation but not when the patients are hydrocephalic. Eight motor and mentally retarded Ss, 5 with hydrocephalus and 3 with hydrencephaly, were examined for a series of autonomic functions including reflex vasodilatation, IV pyrogen for fever, thermoregulatory sweating, induced cardiac acceleration or slowing, piloerection with ID Mecholyl, and change in pupil size with Mecholyl. Results indicated central failure of autonomic function in Ss with hydrencephaly since peripheral autonomic effector mechanisms were intact in 2 patients. In the third S of this group failure of both mechanisms was found during life. The hypothalamus was abnormal in 2 of the 3 cases of hydrencephaly; however, the remainder of the autonomic nervous system was histologically normal as determined by necropsy findings after death of 2 of these Ss, an 18-month-old female and a 3-month-old male. Wide-spread abnormalities of the cerebral hemispheres were observed. With few exceptions the hydrocephalic Ss showed normal response to all tests. (24 refs.) - *M. S. Fish.*

University of New Mexico School of Medicine
Albuquerque, New Mexico 87106

362 **PADGET, DORCAS.** Neuroschisis and human embryonic maldevelopment: New evidence on anencephaly, spina bifida and diverse mammalian defects. *Journal of Neuropathology and Experimental Neurology*, 29(2):192-216, 1970.

A recent examination of 200 sectional human embryos, 100 of which revealed some degree of the abnormality (the extreme forms of which are anencephaly and spina bifida), provides support for the theory that such neural defects result from the opening of the embryonic neural tube after closure, rather than the previously accepted hypothesis that initial failure to close is the primary cause. These observations which support the former hypothesis have required the definition

of "neuroschisis"— abnormal neural clefts which may completely divide any part of the neural plate or neural tube. These secondary openings appear to result in embryonic sequelae which range from mild to severe defects of the neuroaxis with a cleft skull or spine, and to other abnormalities both within and outside of the nervous system. Individual findings which support this conclusion indicate that some degree of neuroschisis is common and that the time and place of occurrence, the degree of the division (whether the clefts heal or expand), and the extent to which neural and other structures are affected determine the nature and extent of damage to the embryo. (38 refs.) - *M. S. Fish.*

University of Maryland School of Medicine
Baltimore, Maryland 21201

363 **HAYDEN, PATRICIA W.; SHURTLEFF, DAVID B.; & FOLTZ, ELDON L.** Ventricular fluid pressure recordings in hydrocephalic patients. *Archives of Neurology*, 23(2):147-154, 1970.

The baseline patterns of spontaneous physiologic responses in the hydrocephalic S require establishment prior to any meaningful use of continuous direct ventricular fluid pressure (VFP) measurements to assess the effects of medical and surgical therapy. The Ss were 10 hydrocephalic children, ages 7 days to 8 months, whose clinical condition precluded surgery, and a group of 15 comparable Ss on whom previous studies have been reported. Of the entire group, 16 had acutely progressive hydrocephalus, and 9 had slowly progressive or arrested hydrocephalus. The measurement of VFP with a strain gauge revealed patterns and fluctuations related to pulse, respiration, and variations in daily cyclic and body activity. These results emphasize the need to recognize the magnitude of such variations and to establish baseline data before the method can be used to evaluate procedures for indirect measurement and to correlate physiologic and clinical data. Mechanical factors (such as the caliber and position of the catheter, jugular compression, and volumetric alterations with fluid and air) have sufficient effect on tracings to warrant their specifications as conditions of the measurements. (10 refs.) - *M. S. Fish.*

University of Washington School of Medicine
Seattle, Washington 98105

364 **SIBAYAN, RENATO Q.; BEGEMAN, PAUL C.; KING, ALBERT I.; GURDJIAN, E. STEPHENS; & *THOMAS, L. MURRAY.** Experimental hydrocephalus: Ventricular cerebrospinal fluid pressure and waveform studies. *Archives of Neurology*, 23(2):165-172, 1970.

A study of experimental hydrocephalus in the dog has emphasized the importance of increased cerebrospinal fluid (CSF) pressure in the production of hydrocephalus and suggests that optimum treatment should aim at reducing CSF mean pressure which, in turn, can lower CSF pulse pressure. One lateral ventricle was made hydrocephalic in each of 10 mongrel dogs by entering through a parietal craniectomy and plugging 1 foramen of Monro with silicone rubber tubing. The other ventricle was left normal to serve as a control. Satisfactory recordings of serial ventricular pressures at intervals of 4 to 8 weeks, with strain gauge pressure transducers leading into the Rickham reservoirs, were successfully made simultaneously in each lateral ventricle in 6 of the 10 dogs prepared. Blocked and enlarged ventricles had pressures at least 1.5 times higher than those in unblocked ones. Ventricle enlargement varied from slight to marked. The effects of pain, epinephrine, and ventricular CSF volume were also studied. (10 refs.) - *M. S. Fish.*

*Wayne State University School of Medicine
Detroit, Michigan 48207

365 **HANAWAY, JOSEPH; & WELCH, GARY.** Anencephaly: A review and interpretation in terms of modern experimental embryology. *Diseases of the Nervous System*, 31(8):527-533, 1970.

Production of experimental exencephaly by maternal hypervitaminosis A has permitted detailed study of the intermediate stages of the cellular aspects of non-closure involved in anencephaly. Excess vitamin A apparently interferes with the cell cycle of the neuroepithelium so that cell nuclei in metaphase are arrested on the luminal surface, and the neural groove, instead of closing, everts and forms an exencephalic brain; the excess vitamin also results in abnormal skull development by its effects on the mesoderm of the cephalic somites. Since the neuroepithelium and the sur-

rounding mesoderm are simultaneously malformed, the result is anencephaly. (41 refs.) - *B. Berman.*

University of Virginia School of Medicine
Charlottesville, Virginia 22901

366 **KIRKE, D. K.** Goldenhar's syndrome: Two cases of oculo-auriculo-vertebral dysplasia occurring in full-blood Australian aboriginal sisters. *Australian Paediatric Journal*, 6(4):213-214, 1970.

Two full-blooded aboriginal sisters are the first reported cases of oculo-auriculo-vertebral dysplasia in an Australian aboriginal and the first instance of any hereditary pattern in this pathology. Born of full-blooded, unrelated aboriginal parents, the 2 girls (CA 2½ yrs and 5 yrs) are of normal intelligence and physical development and have left-sided lesions, hemifacial microsomia, vertebral anomalies, micrognathia, and frontal bossing. The younger shows no rib anomalies and the elder shows no microstomia. Neither has an orotragal sinus. Chromosomal studies on the younger and her half brother showed no abnormalities. (2 refs.) - *B. Berman.*

Department of Rural Health
Alice Springs, Australia

367 **STEVENS, L. H.** Appraisal of the state of nutrition of babies of low birth weight: I. Current status. *Australian Paediatric Journal*, 6(2):70-75, 1970.

The adequacy of human milk (especially, the protein content) for premature babies needs further study. In the United States, low-birth-weight babies are now fed on cow's milk formula; in Australia, mother's milk is still used. The different practices result from a lack of refinement in appraising and comparing varying nutritional regimes and lack of precise information on use and disposal of human-milk nitrogen. Information is needed also on the protein needs of neonates suffering from placental dysfunction: these infants apparently recover from fetal malnutrition after birth. (51 refs.) - *B. Berman.*

University of New South Wales
Paddington, New South Wales, Australia

368 **FISHMAN, MARVIN A.; & PEAKE, GLENN T.** Paradoxical growth in a patient with diencephalic syndrome. *Pediatrics*, 45(6):973-982, 1970.

Characteristic features of the diencephalic syndrome (extreme emaciation, euphoria, and hyperkinesis) in a boy with an astrocytoma of the optic chiasm were present for the first 5½ years of life. Plasma growth hormone was paradoxically elevated, however, and rose even further in response to arginine infusion and glucose administration. A sudden growth spurt assumed to be concomitant with increasing tumor size then occurred, and the boy became obese. Growth hormone secretion was then reduced and no longer responded to stimulation. No other endocrine abnormalities except precocious puberty throughout the course were noted. At age 6.7 years, his Stanford-Binet IQ was 78. (23 refs.) - *E. L. Rowan.*

St. Louis Children's Hospital
St. Louis, Missouri 63110

369 **VALDES-DAPENA, MARIE A.; & AREY, JAMES B.** The causes of neonatal mortality: An analysis of 501 autopsies on newborn infants. *Journal of Pediatrics*, 77(3):366-375, 1970.

Autopsies were performed on 501 consecutive infants who died within 28 days after birth in a large metropolitan hospital from 1960-1966. Eighty-nine percent of these infants weighed less than 2500 grams at birth. The principal causes of death were pulmonary hyaline membranes (35%), inflammatory lesions, especially bronchopneumonia (25%), and intraventricular hemorrhage (26%). Ten percent had major congenital anomalies. Comparison with a similar study done 10 years previously showed that there was an apparent increase in the frequency of hyaline membrane disease and intraventricular hemorrhage. Comparison with death certificates (including those from the same city) showed the latter to be woefully inadequate, especially because they record only the primary diagnosis, lump cases under immaturity and postnatal asphyxia, and lack autopsy data. The neonatal group has the highest death rate, and it is important to know the causes in order to properly treat and prevent. (13 refs.) - *E. L. Rowan.*

St. Christopher's Hospital for Children
Philadelphia, Pennsylvania 19133

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MEDICAL ASPECTS – Etiologic Groupings
Gross brain disease (postnatal)

370 **SHEARN, M. A.; TU, W. H.; STEPHENS, B. G.; & LEE, J. C.** Virus-like structures in Sjogren's syndrome. *Lancet*, 1(7646):568-569, 1970. (Letter)

A search for virus-like structures in Sjogren's syndrome has provided morphological evidence for virus-related endothelial cytoplasmic inclusions in renal biopsy specimens in 2 of 4 patients with the syndrome. In both Ss, the inclusions were identical to those described for patients with systemic lupus erythematosus. The theory of a viral cause of the syndrome could clarify a number of unexplained features of the disease including familial occurrence and the observed increase in humoral-antibody concentration with depression of cell-mediated immunity, both of which also occur in viral diseases. (9 refs.) - *M. S. Fish.*

Kaiser Foundation Hospital
Oakland, California

371 **RICHARDS, B. W.** Sjogren-Larsson syndrome. *Lancet*, 1(7646):575, 1970. (Letter)

A British investigator requests the referral to him of known cases of Sjogren-Larsson syndrome. The disease is rare (only 7 cases having been reported in Britain) and is characterized by MR, spastic paralysis (diplegia type), and ichthyosis. Retinal changes and athetotic symptoms may also appear. The projected study involves clinical and dermatoglyphic analysis. (No refs.) - *M. S. Fish.*

St. Lawrence's Hospital
Caterham, Surrey, England

372 **LISKER, RUBEN; & COBO, AZYADEH.** Chromosome breakage in ataxia-telangiectasia. *Lancet*, 1(7647):618, 1970. (Letter)

An 8-year-old girl with ataxia-telangiectasia is the first reported case with chromosomal defects in the bone marrow as well as in the blood. In a peripheral-blood culture with phytohemagglutinin, microscopic analysis showed breaks in 22 of 60 cells in metaphase. Of 12 cells suitable for study, a direct bone-marrow chromosomal analysis showed 4 with single-chromatid breaks. The incidence of breaks was significantly higher than that in controls. (2 refs.) - *B. Berman.*

National Institute of Nutrition
Mexico City, Mexico

373 **LEROY, J. G.; DUMON, J.; & RADERMECKER, J.** Deficiency of arylsulphatase A in leucocytes and skin fibroblasts in juvenile metachromatic leucodystrophy. *Nature*, 226(5245):553-554, 1970. (Letter)

An assay of arylsulphatase A in leukocyte homogenates in a family has proved useful in diagnosing juvenile-type MLD and in detecting the heterozygotes for the causative gene (it did not differentiate them from the homozygotes). The autosomal-recessive inheritance of juvenile MLD was supported by detection of the partial biochemical effects in parents. Skin biopsies from patients yielded arylsulphatase A also in the fibroblast monolayers; these studies proved more useful as prognosticators of juvenile MLD in the presymptomatic stage. (14 refs.) - *B. Berman.*

State University Center
Antwerp, Belgium

374 **SPIRO, ALFRED J.; MOORE, CYRIL L.; PRINEAS, JOHN W.; STRASBERG,**

PAULA M.; & RAPIN, ISABELLE. A cytochrome-related inherited disorder of the nervous system and muscle. *Archives of Neurology*, 23(2):103-112, 1970.

Studies of an unusual inherited disease of the nervous system and muscle disclosed that a marked reduction in mitochondrial cytochrome b and loosely coupled oxidative phosphorylation were associated with clinical symptoms of ataxia, muscle weakness, areflexia, and insidious dementia. Muscle biopsies of a 46-year-old man and his 16-year-old son revealed evidence of nonspecific myopathic and neuropathic processes; however, ultrastructure studies showed only an increase in the size and number of muscle mitochondria and occasional atrophic fibers. The mitochondria had no significant ultrastructural alteration, but had pronounced reduction in relative values of cytochrome a and b, the latter being markedly reduced. Energy production of the mitochondria was about one-half normal, and an abnormal insensitivity to antimycin A was observed. The pattern of clinical involvement suggests that the abnormalities found in muscle mitochondria likely exist in other organs and in the nervous system. (47 refs.) - *M. S. Fish.*

Albert Einstein College of Medicine
Bronx, New York 10461

375 **IONASESCU, VICTOR; *ZELLWEGER, HANS; FILER, LLOYD J., JR.; & CONWAY, THOMAS W.** Increased collagen synthesis in arthrogryposis multiplex congenita. *Archives of Neurology*, 23(2):128-136, 1970.

Study of 2 cases of arthrogryposis multiplex congenita (AMC) differing in severity of symptoms, age, pathological findings, and congenital malformations showed a similarity in increased synthesis of collagen and suggests that a common metabolic defect may cause fibrosis and later muscle degeneration which is characteristic of the disease. Examination of a 16-year-old male patient presenting with generalized muscle wasting, short stature, low weight for age, and low IQ showed 4.8 times the normal collagen content (measured as hydroxyproline), a decrease in noncollagen protein, and a low level of synthesis of muscle contractile proteins as indicated by low amino acid incorporating activity of the polyribosomes. A 20-month-old girl with joint contractures, multiple congenital anomalies, myoclonic seizures, and severe psychomotor and growth retardation also had a decrease in noncollagen protein but, in contrast to the first S, showed a large increase of activity in regions associated with the synthesis of muscle contractile proteins and a normal distribution of collagen. The age of this S, however, suggests that the collagen fibers may have been present but invisible microscopically since polyribosomes were active for collagen synthesis. (21 refs.) - *M. S. Fish.*

*University Hospitals
Iowa City, Iowa 52240

376 **WISNIEWSKI, HENRYK; TERRY, ROBERT D.; & HIRANO, ASAO.** Neurofibrillary pathology. *Journal of Neuropathology and Experimental Neurology*, 29(2):163-176, 1970.

Electron microscopy has revealed 2 major types of neurofibrillary degeneration: twisted tubules of a width of about 200Å with constrictions every 800Å and tangled 100Å filaments. Experimental material was human biopsy and autopsy specimens from Ss with various neurofibrillary disorders and tissue from laboratory animals in which the disorders were experimentally produced with aluminum salts, lathyrogenic agents, and spindle inhibitors. Electron microscopy disclosed that the wider twisted tubules with constrictions form the lesions of Alzheimer's disease, senile dementia, Guam-Parkinsonism-dementia complex, post-encephalitic Parkinsonism, and Pick's disease; whereas, the narrower tangled filaments are found in human infantile neuroaxonal dystrophy, vincristine neuropathy, sporatic motor neuron disease, and various induced disorders in laboratory animals. The changes are irreversible except for those caused by spindle inhibitors. Satisfactory explanation of the pathogenesis of these disorders is lacking, and additional studies, including those of the chemical nature of the abnormal filaments, are needed. (41 refs.) - *M. S. Fish.*

Albert Einstein College of Medicine
Bronx, New York 10461

377 **SHAW, CHENG-MEI; & CARLSON, COLDEVIN B.** Crystalline structures in globoid-epithelioid cells: An electron microscopic study of globoid leukodystrophy

(Krabbe's disease). *Journal of Neuropathology and Experimental Neurology*, 29(2):306-319, 1970.

Ultrastructure studies of specimens from an autopsied case of globoid leukodystrophy (Krabbe's disease) have revealed the presence, in the perivascular spaces, of globoid-epithelioid cells which are actually phagocytic pericytes; however, morphologically similar cells found in the parenchyma were not lined by a basal lamina but, instead, were surrounded by dense astrocytic processes. Within the cytoplasm of the globoid-epithelioid cells were observed pleomorphic laminated crystals and spicules. Since this particular observation has not been reported previously and was made in only 1 case, the relation of these structures to Krabbe's disease is still uncertain. The case was a 20-month-old son of a woman whose family was MR. Normal development of the S ceased at 6½ months, and the S was institutionalized at the age of 1 year followed by further deterioration and, finally, death at 20 months. Clinical and histological findings were typical of Krabbe's disease. (22 refs.) - *M. S. Fish.*

University of Washington Medical School
Seattle, Washington 98105

378 SUZUKI, KINUKO; & GROVER, WARREN D. Ultrastructural and biochemical studies of Schilder's disease: I. Ultrastructure. *Journal of Neuropathology and Experimental Neurology*, 29(3):392-404, 1970.

Ultrastructural studies of 2 cases of Schilder's disease indicate that the disorder is one of primary demyelination and has morphologic features similar to multiple sclerosis (MS). One S, a white retarded male, developed symptoms (blindness, slurred speech, gait, and ataxia) at 10½ years of age and died 7 months later. The second S, also healthy until age 10, first had visual impairment followed by personality change, decline in school work, and the development of ataxic gait, fixed extremities, and hyperactive tendon reflexes over a 5-year period. Light microscopic studies of the first case revealed the process of degeneration of myelin sheaths was underway and was characterized by abrupt termination of many sheaths, naked and partly covered axons, and areas of total demyelination where no myelin sheaths or oligodendroglia were present. In case 2, evidence was found of possible abortive remyelination in such demyelinated areas, and the extent of degeneration appeared to be greater than that usually observed in MS and other cases of Schilder's disease. (9 refs.) - *M. S. Fish.*

University of Pennsylvania School of Medicine
Philadelphia, Pennsylvania 19107

379 BUNDEY, SARAH; & CARTER, C. O. Early recognition of heterozygotes for the gene for dytrophia myotonica. *Journal of Neurology, Neurosurgery and Psychiatry*, 33(3):279-293, 1970.

Techniques for the detection of abnormalities in symptomless heterozygotes for the gene dystrophia myotonica have been demonstrated to be useful in the following order: slit-lamp examination, electromyography, and immunoglobin concentration. The procedures appear to be more useful in combination and may offer promise for the early alerting of carriers. In addition to the above tests, clinical examinations, radiography of the skull, electrocardiography, and serum insulin were determined for 124 first degree relatives of 38 index patients with this disease, resulting in the identification of 13 previously undetected heterozygotes. Characteristics of the disorder are: muscle wasting; weakness; myotonia; personality changes, including MR; electrocardiographic, electromyographic and skull radiographic changes; high serum insulin; and low serum immunoglobin G. It is a dominant condition which is very variable in the time of onset and in the severity of its symptoms in individuals heterozygous for the mutant gene; in about one-half of the cases symptoms do not appear until after age 30. The study may aid in efforts toward the early detection of the disease before usual clinical signs appear and in time for genetic counseling to be effective. (21 refs.) - *M. S. Fish.*

Institute of Child Health
London, England

380 VALMIKINATHAN, K.; & CUMINGS, J. N. Biochemical studies in Nevin-Jones syndrome. *Journal of Neurology, Neurosurgery and Psychiatry*, 33(3):299-302, 1970.

Biochemical studies of the brains of 4 cases of Nevin-Jones syndrome disclosed a general loss of

myelin over a period of time and indicated that a secondary demyelination is present in the disorder which is characterized clinically by a rapidly fatal condition associated with myoclonic epilepsy. The nature of the disorder was verified both clinically and histologically in 2 males (48 and 60 years of age) and 2 females (63 and 64 years of age). Lipid analyis of brain tissues of the 4 cases and a normal control revealed that in 2 instances a loss of phosphatidyl ethanolamine occurred in both white matter and cortex, along with a more general loss of cortical lipids in 1 S. The myelin had a normal cerebroside-sulphatide ratio. The observed decrease in C-24 fatty acids, particularly nervonic acid, in the cerebrosides was indicative of the secondary demyelination in the white matter. (14 refs.) - *M. S. Fish.*

Institute of Neurology
Queen Square, London, England

381 **CURRIE, S.; ROBERTS, A. H.; & URICH, H.** The nosological position of concentric lacunar leucoencephalopathy. *Journal of Neurology, Neurosurgery and Psychiatry*, 33(2):131-137, 1970.

Post-mortem examination of a case of concentric lacunar leukoencephalopathy indicated a close association with typical neuropticomyelitis and, together with the nature of the symptoms, suggests a close relation to the demyelinating diseases. The S was a 64-year-old male presenting with left homonymous hemianopia which progressed rapidly to total cortical blindness. Transient left hemiparesis and grand mal seizures ensued, and 14 months later, a rapidly progressive ascending myelopathy proved fatal. The presence of demyelinating lesions of the optic nerve and acute necrotic myelopathy associates this case with neuropticomyelitis. Bilateral lesions observed in the occipital white matter were similar to those described previously for a case of concentric lacunar leukoencephalopathy. The previous study, however, did not include examination of the spinal cord and optic nerve, and lacking any clinical suggestion of myelopathy, the case was not included in any definite nosological group. (11 refs.) - *M. S. Fish.*

Newcastle General Hospital
Newcastle upon Tyne, England

382 **LIU, H. MEI.** Ultrastructure of globoid leukodystrophy (Krabbe's disease) with reference to the origin of globoid cells. *Journal of Neuropathology and Experimental Neurology*, 29(3):441-462, 1970.

Ultrastructure studies of a case of globoid leukodystrophy (Krabbe's disease) suggest that a disturbance in the regulating mechanisms of the normal myelinating process, possibly due to improper binding or an excess of some of the components, may be a causative factor. The globoid cells, which characteristically have filamentous inclusions and fibrillar bodies, may be derived from microglia by an accumulation of degraded products of abnormal myelin membranes. The case was a white female who experienced unsteady gait, weakness, and clumsiness of hand movements at the age of 5 years; the condition progressed to complete quadriplegia, pseudobulbar palsy, and finally death 3 years after the onset of the symptoms. A twin sister was similarly affected, and a younger sister had convulsions controlled by medication. Autopsied samples of brain sections examined under light and electron microscopes showed a series of changes ranging from minimal to late, the latter being characterized by considerable demyelination and gliosis, the presence of globoid cells, and the disappearance of myelin sheaths and oligodendroglia. (35 refs.) - *M. S. Fish.*

Northwestern Medical School
Chicago, Illinois 60611

383 **SUZUKI, YOSHIYUKI; TUCKER, SAMUEL H.; RORKE, LUCY BALIAN; & SUZUKI, KUNIHIKO.** Ultrastructural and biochemical studies of Schilder's disease: II. Biochemistry. *Journal of Neuropathology and Experimental Neurology*, 29(3):405-419, 1970.

Biochemical studies of specimens obtained from cases of Schilder's disease have disclosed drastically altered lipid composition in the brain, chemically abnormal myelin characterized by a decrease in galactolipids and an increase in cholesterol, and alterations of ganglioside pattern in the white matter. Chemical analysis of material obtained from 3 cases showed that altered lipid composition of the brain was characterized by increase in water and cholesterol ester content and decrease in

galactolipids, proteolipid protein, and ethanolamine phospholipids, with white matter being more severely effected. Observations of the isolated myelin suggest a nonspecific process of myelin destruction. The similarity of alterations in the ganglioside pattern and other histological features to those observed in subacute sclerosing panencephalitis, a condition believed to have a viral etiology, suggests a possible cause of Schilder's disease, although no specific virus particles were found in the specimens examined. (52 refs.) - *M. S. Fish.*

University of Pennsylvania School of Medicine
Philadelphia, Pennsylvania 19107

384 **ROBOZ, P.; & PITT, D.** Studies on 782 cases of mental deficiency: Part V. *Australian Paediatric Journal*, 6(4):185-191, 1970.

Of 116 Ss with encephalopathy (with neurological manifestations) of unknown etiology, there were 4 with an obscure form of progressive neurological disease, 53 with motor abnormalities, and 59 epileptics without motor disorders. Compared with controls, the group with motor disorders suggested possible perinatal factors operating since there was a significant increase in the number of cases with neonatal symptoms (especially an inability to suck) which were sequelae of prematurity and twinning. Birth weight tended to be low, spasticity was high (31 Ss); 19 Ss were epileptic. The majority of these cases was retarded (64.1% severely, 32.1% moderately, and 2.8% mildly); 28.2% had behavior disorders. Epileptics without motor disorders also showed a high incidence of pregnancy complications, prematurity, and twinning and some signs of genetic factors (with 10 families having relatives with epilepsy and/or MR). Although nothing distinguishable as an epileptic personality was manifest, many in this group showed behavior disorders, especially overactivity associated with explosive irritability, aggressiveness, short attention span, distractibility, autism, withdrawal, and psychosis. Psychotic disturbances were attributed to psychogenic and environmental factors and to brain damage. (13 refs.) - *B. Berman.*

Childrens Cottages Training Centre
Kew, Victoria, Australia

MEDICAL ASPECTS – Etiologic Groupings

Psycho-environmental

385 **JENNINGS, A. N.** The mentally retarded, psychotic child. *Australian Journal of Mental Retardation*, 1(5):145-149, 1971.

When there is a common cause, a child may be MR as well as psychotic, both reflecting brain syndromes of various etiology (diagnosis depending on organic and psychological signs, EEG, and other tests), severe disturbances (emotional) in basic relationships (controlled by chlorpromazine, thioridazine, diphenylhydramine, the amphetamines, anticonvulsants, or appropriate management programs), or an additional or secondary complication (differential diagnosis being very difficult). Early diagnosis of primary psychogenic and perhaps treatable psychosis is important in preventing MR but it is difficult because of confusing classifications and differences at various developmental levels. The retarded or brain-damaged child presents difficulties in parent-child responses which require special counseling and, if not controlled, may have psychiatric consequences. Many such infants with unusual sensitivities develop premature ego defenses and personalities inadequate to sustain emotional stress. Professionals must devise clear goals and programs for psychotic-retarded children. (16 refs.) - *B. Berman.*

Marsden Hospital
Westmead, New South Wales, Australia, 2145

386 **RENDLE-SHORT, J.** Childhood autism, *British Medical Journal*, 1(5696):627-628, 1970. (Letter)

Efforts for the autistic child must correspond with the 3 types of autism: classic Kanner syndrome where symptoms may appear early in life or during the first 3 years after an acute "event;" autistic symptoms secondary to gross MR (especially PKU) or organic handicaps; clinically autistic but with behavior related to long-standing psychological trauma. Vigorous treatment for the first group offers greatest promise provided diagnosis is early. To meet urgent demands for allocation of resources, trained pediatricians, in cooperation with organizations, must evaluate handicapped children. (3 refs.) - *B. Berman.*

University of Queensland
Brisbane, Australia

387 **BAKER, HAZEL.** Childhood autism. *British Medical Journal*, 1(5696):627, 1970. (Letter).

True autism embraces several related conditions (demanding varying approaches) but it should not be confused with SMR with autistic symptoms. Six austistic children (all untestable when first seen) showed scores of 75 to 130 on the Wechsler Intelligence Scale for Children (2 with very high reading ages); 3 are now enrolled in normal schools. Four other autistic children show no signs of MR or dementia, although they once required special provision. (No ref.) - *B. Berman.*

School Health Service
Staffordshire, England

388 **GRAVES, WILLIAM L.; FREEMAN, MALCOLM G.; & THOMPSON, JOHN D.** Culturally related reproductive factors in mental retardation. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 695-736.

Sociocultural aspects of reproduction that relate to MR are biological, environmental, and psychological. Biological factors include age, number and spacing of pregnancies, nutrition, and health. Pregnancies presenting problems are those that occur at very early age or late in life or are of high parity; generally speaking, the first pregnancy poses risks. Some have found increased risk among children of fathers over age 45. Women in good health, tall, and well-nourished are more likely to have successful pregnancies than their opposites. MR children have been attributed to such environmental events as mothers who smoked, excessive radiation in particular geographic areas, and seasonal variations. Social, economic, and cultural factors contributing to MR include social class (prematurity being more common in lower socioeconomic groups), quality of prenatal care, mothers' working during pregnancy, and population density. Evidence points to a relation between infant morbidity and maternal competence, infant-care customs, and parental intelligence. There is a definite connection between personality and stress factors and abortion, toxemia, and other pregnancy complications. The resultant MR toll is well-documented; the high occurrence of these events among the disadvantaged groups poses a challenge to society. (132 refs.) - *B. Berman.*

389 **TARJAN, GEORGE.** Some thoughts on sociocultural retardation. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 745-758.

Sociocultural retardation, according to the American Association on Mental Deficiency's (AAMD) terminology and classification manual, combines cultural-familial retardation and psychogenic retardation associated with environmental deprivation. An MR diagnosis depends on 3 criteria: below-average intellectual functioning (IQ at least 2 SDs below the mean), impaired adaptive behavior (tests for this being neither reliable nor valid), and origination of the syndrome during the developmental period. Although skill in early diagnosis of mild MR is increasing, tests (biomedical or psychometric) are administered only after diagnosis by observed impairment. The great majority of those not overtly diagnosed before school years fall into the lower sociocultural group—these occur at a level of about 750/100,000 population. Epidemiologic research (complicated by imprecise definitions of sociocultural retardation) is important, should use new approaches, and enlist the aid of teachers,

psychologists, practicing physicians, and institutions. Etiology of sociocultural retardation must consider genetics, biomedicine, general health, noxious agents (viruses, bacteria, poisons, trauma, and nutritional impairment), stimulus deprivation, and impoverishment (extremely important). Ultimate answers will come when learning, memory, and emotions are explicable in physical or chemical terms. (24 refs.) - *B. Berman.*

390 **HAYWOOD, H. CARL.** Some perspective in social-cultural aspects of mental retardation. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 761-778.

This summing-up of papers presented to the Peabody-NIMH international conference on social-cultural aspects of MR focuses on the nature of cognition, the relative contributions of biology and culture to MR, and the preventive role of education. Cognitive development depends on a biological organism receiving sensory stimulation and perceptual experience in a sympathetic environment characterized by sensitive parental influence and carefully structured school programs. Social class and institutions play strong roles in mild MR; 40 years of evidence show more than a correlation between cultural and economic deprivation and occurrence of mild and moderate MR (defined chiefly by psychometric and academic criteria). Residential facilities for MRs (severe cases now outnumber the mild in these institutions) remain a strong influence, with their effects consonant with the quality and extent of resources and staff. Cross-cultural studies have revealed recognition of even mild MR in societies just above the hunting stages. The United States has paid strong attention to as yet unresolved educational, social, and vocational problems—especially among ethnic groups—and is seeking ameliorations, particularly in strengthened preschool programs. Work is proceeding on defining those social-class variables which may predispose to biological deficiencies (particularly in those associated with obstetric complications) and consequent MR. (1 ref.) - *B. Berman.*

391 **NEUHAUSER, G.; & ZERBIN-RUDIN, E.** Oligophrenia with probable sex-linked recessive inheritance. *German Medical Monthly,* 15(6):343-346, 1970.

A recent study of 3 families in which MR appeared to be inherited as a sex-linked recessive trait did not reveal evidence of inheritance of known X-chromosomal anomalies. Of the 3 families in which idiopathic oligophrenia was found only in males, the mothers usually appeared to be of lower intelligence than their brothers and sisters, and when male relatives other than sibs were defective, they were related through the mothers. In 1 family, 4 male sibs were deficient but had 4 normal sisters and normal parents and grandparents. A second family had 2 MR brothers whose mother had 3 MR brothers. Two of the brothers of the maternal grandmother were classified as backward. Both the mother and grandmother appeared to be of below average intelligence. In the third family, a mother classified as "eccentric" had 3 MR sons, a sister with 3 MR sons, and another sister who had an MR son and a healthy daughter with an MR son. All affected persons suffered from defects in speech and intellectual capacity but appeared to be able to adapt socially. Since none of the affected males had offspring, the possibility of differentiation of sex-linked recessive from sex-linked autosomal inheritance could not be explored genealogically. Although the heterogeneous group comprising the mild forms of MR constitutes a population for which specific morphological, biochemical, or neurological factors are usually lacking, these reported cases of suspected sex-linked recessive oligophrenia apparently constitute one individual form, although the borderline intelligence of some of the mothers may point to the possibility of incomplete recessivity. (18 refs.) - *M. S. Fish.*

Kinderklinik und Poliklinik der Universitat
Erlanger, Germany

392 **GUBBAY, S. S.; LOBASCHER, M.; & KINGERLEE, P.** A neurological appraisal of autistic children: Results of a Western Australian survey. *Developmental Medicine and Child Neurology,* 12(4):422-429, 1970.

Twenty-five children who were clinically autistic were subjected to neurological and EEG examination. All received scores in the MR range when tested for intelligence. In general, all showed a normal external appearance. EEG tracings were

abnormal in 77% (N=14) of technically satisfactory records. On the basis of history and examination, 56% of the group was considered to have "unequivocal brain disease" and an additional 28% was classified as "probable brain disease." Autism may be a symptom rather than a pure condition and may be associated with multiple cerebral disorders. (18 refs.) - *E. L. Rowan.*

Princess Margaret Hospital for Children
Western Australia, Australia

393 **BOULLIN, D. J.; COLEMAN, M.; & O'BRIEN, R. A.** Abnormalities in platelet 5-hydroxytryptamine efflux in patients with infantile autism. *Nature*, 226(5243):371-372, 1970. (Letter)

Investigations of 5-hydroxytryptamine (5-HT) uptake in 6 children (CA 4-14 yrs), diagnosed with infantile autism, showed that Ss' platelets accumulated 5-HT to a slightly greater extent than normal platelets (2.6 as compared with 2.0), had defective retention of the amine, and a slight but not significant increase in ATP. The increased 5-HT efflux derived not from an ATP lack but from some other effect related to 5-HT or its metabolites. This abnormality as well as defects in binding metabolism and turnover play a role both in autism and in other psychotic syndromes. (15 refs.) - *B. Berman.*

Children's Hospital
Washington, D.C. 20009

394 **CREAK, MILDRED.** Diagnostic and treatment variations in child psychoses and mental retardation. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 6, p. 140-149.

A differential diagnosis in children between autism and psychosis on the one hand and MR on the other continues to pose problems. Is there justification in separate categories? Terminology, clinical descriptions, and behavioral parameters need further clarification. Speech (slow to develop in retardates; cessation, abrupt or gradual, in autism) offers some clues, particularly in its correlation with intelligence. Questions of organic origin or emotional disturbance in both pathologies remain unanswered. Physicians consulted by parents present confusion and uncertainty, and therapy is dependent on diagnosis, prognosis and the availability of special classes or residential units. The entire clinical picture is greatly in need of clarification. (6 refs.) - *B. Berman.*

MEDICAL ASPECTS — Convulsive Disorders

395 **HOPKINS, I. J.** Minor epilepsies of childhood. *Australian Paediatric Journal*, 6(2):88-91, 1970.

The small epileptic attacks, in contrast to grand mal and focal epilepsy, present terminology difficulties. Petit mal, which must be distinguished from other minor forms because of treatment differences, occurs between 5 and 10 years of age and shows brief attacks accompanied by interruptions of conscious state with minimal motor occurrences. Treatment is with ethosuximide and troxidone, with an anticonvulsant to prevent grand mal seizures. Minor motor epilepsies (myoclonic, akinetic, and tonic spasms) reveal a short but obvious motor accompaniment, with less prominent loss of consciousness. Nitrazepam is the first choice in treatment, and corticosteroids are sometimes effective as anticonvulsants. Episodes of epileptiform status (unsteady gait and clumsy arm movements) frequently accompany the motor forms and may be controlled by oral corticosteroids or ACTH. Infantile spasms (included with minor epilepsies) are of great significance in MR consequences (half the cases show no etiology and, in some, there is encephalopathy). All minor forms have characteristic EEGs. (9 refs.) - *B. Berman.*

Royal Children's Hospital
Melbourne, Australia, 3051

396 **SCOLLO-LAVIZZARI, G.** Valium and epilepsy. *Lancet*, 1(7643):422, 1970. (Letter)

Both injections and oral administration of diazepam appear to be effective in relieving the

secondary effects of epilepsy but not its primary focus. Since diazepam eliminates the generalized response following photostimulation in some patients with photosensitive epilepsy, this deactivation may serve as a simple technique to distinguish primary from secondary epilepsy. (7 refs.) - *E. L. Rowan.*

University Neurology Clinic
Basle, Switzerland

397 **BAIRD, HENRY W.** Management of convulsions. *Lancet,* 1(7643):421-422, 1970. (Letter)

Although intravenous diazepam may give dramatic results in children in status epilepticus, sodium phenobarbitone (injected intramuscularly) and not diazepam is the drug of choice in this condition. Status would probably not occur if children with idiopathic convulsive disorders received their medication regularly. Intravenous medication should be limited to that period before diagnostic procedures have been completed and an effective drug regime has been instituted. (1 ref.) - *E. L. Rowan.*

Temple University School of Medicine
Philadelphia, Pennsylvania 19133

398 **KOMAI, SUMIYA.** Clinical study on the correlation between generalized convulsions and psychomotor attacks or so-called abortive fits. *Psychiatria et Neurologia Japonica,* 71(7):669-677, 1969.

To clarify the association of psychomotor attacks and generalized convulsion, 385 Ss with epilepsy were studied. Possible mechanisms include: psychomotor activity occurs when the primary focus of epileptic discharges is restricted to the temporal lobe; a primary epileptogenic process may engulf the entire brain and, in its final stage, will induce generalized convulsion; and if the process is terminated before its final stage, psychomotor attacks are precipitated. In 88.9% of cases, there were combinations of generalized convulsions and psychomotor attacks. In 90 cases (23.4%), generalized convulsive seizures were associated with other seizure types. (13 refs.) - *B. Berman.*

Hokkaido University School of Medicine
Hokkaido, Japan

399 **ELIAN, MARTA.** Epilepsy and G.-6-P.D. deficiency. *Lancet,* 1(7642); 364, 1970. (Letter)

An association of generalized epileptic convulsions and an enzyme (G.-6-P.D.) deficiency in 2 of 4 boys in an Israeli Ashkenasy family is felt to be more than accidental since the deficiency is rare (0.2%) among the Ashkenasy population. However, no enzyme deficiency was found in 100 selected Ashkenasies receiving treatment for epilepsy. The same association has been found in many other patients–but all of Oriental Jewish origin. (No refs.) - *B. Berman.*

Tel Aviv University Medical School
Petah Tikva, Israel

400 **KOMAI, SUMIYA.** Experimental study on the mechanism of convulsive seizure–with special reference to the correlation of generalized convulsion with rhinencephalic seizure. *Psychiatria et Neurologia Japonica,* 71(7):678-700, 1969.

EEGs from 59 mature cats with experimental epilepsies induced by tungstic-acid gel applied to the nuclear thalamus demonstrated a signficant role for the limbic system in disseminating to subcortical structures seizure discharge originating in the centroencephalon. Only when the electrical activities of the thalamus, caudate nucleus, putamen, and cortex become self-sustaining seizure discharges will a generalized convulsion occur. Silver-ball electrodes and multipolar needles recorded cortical and subcortical activity. Injury discharge-like activities occurred in the ipsilateral hippocampus 10-20 minutes after gel injection. (67 refs.) - *B. Berman.*

Hokkaido University School of Medicine
Hokkaido, Japan

401 **BOOKER, HAROLD E.; CHUN, RAYMOND W. M.; & SANGUINO, MIGUEL.** Myasthenia gravis syndrome associated with trimethadione. *Journal of the American Medical Association*, 212(13):2262-2263, 1970.

Trimethadione therapy for petit-mal seizures in an 8-year-old girl induced (in a few months) myasthenic reactions which, within 6 months following trimethadione withdrawal, showed complete remission. Preceding cessation of this therapy, the S showed progressive bulbar weakness, and a major convulsion precipitated a respiratory-failure crisis requiring large doses of neostigmine methylsulfate. The prolonged recovery time and presence of autoantibodies triggered by trimethadione suggest that the myasthenic reaction was not a direct pharmacologic consequence of, but an autoimmune reaction to, the drug. (4 refs.) - *B. Berman.*

University of Wisconsin Medical Center
Madison, Wisconsin

402 Epileptics given constant monitoring via telemetry. *Journal of the American Medical Association*, 212(8):1292, 1970.

A portable telemetry pack that monitors epileptics' EEGs and other items—developed by the University of California's Brain Research Institute—permits monitoring in their homes, when patients are not under general observation. Worn as a head turban, the device transmits brain, eye, muscle, and heart data to a radio receiver, then telephonically to a computer laboratory where oscilloscopes and numerical print-outs produce visual forms for inspection by neurologists. The device overcomes the familiar tendency of epileptics not to have seizures when observed in hospitals. (No refs.) - *B. Berman.*

403 **JEAVONS, P. M.; HARPER, J. R.; & BOWER, B. D.** Long-term prognosis in infantile spasms: A follow-up report on 112 cases. *Developmental Medicine and Child Neurology*, 12(4):413-421, 1970.

A group of 98 children with infantile spasms was followed for periods ranging from 4 to 12 years; eighteen died. Infantile spasms appear to be age specific, and only 9 of the remaining 80 children still had spasms at follow-up; however, 59 had had other types of convulsions, and only 36 were free of all seizure activity at follow-up. EEGs were abnormal and variable in half the children. Neurological abnormalities were present in 51 patients, and only 13 children showed normal intelligence. Fifty-eight of the children had been treated with steroids, but this did not appear to be a significant factor in outcome. If the etiology of spasms was cryptogenic (unknown) or immunogenic, the approximately one-third had a good prognosis, but if spasms followed perinatal insult, the prognosis was uniformly bad. (14 refs.) - *E. L. Rowan.*

Dudley Road Hospital
Birmingham, England

404 **GOLD, ARNOLD P.; & CARTER, SIDNEY.** Management of convulsions. *Lancet*, 1(7655):1053, 1970. (Letter)

Status epilepticus is a medical emergency for which intravenous anticonvulsive therapy (specifically diazepam) is the treatment of choice. (Most children with this pathology show a symptomatic seizure disorder.) Intramuscular sodium phenobarbitone is not effective, as claimed. (2 refs.) - *B. Berman.*

Columbia University College of Physicians and Surgeons
New York, New York 10032

405 People with epilepsy. *Lancet*, 1(7648):659-660, 1970. (Editorial)

In Great Britain, progress in the implementation of recommendations for the care of persons with epilepsy is slight. Although the formation of multidisciplinary diagnosis and assessment teams has been recommended for 15 years as well as the establishment of centers for those with special problems of management and various other services, they have generally not been acted upon. This lack of action seems due to questions concerning the value of multidisciplinary teams and special clinics in the treatment of epilepsy as well as to a shortage of financial resources. The most urgent present need is for special centers for

long-term evaluation. Recommended simple inexpensive improvements include wider recognition and use of expert consultants, changeover in care from children's to adult clinics, placement and guidance services for school leavers, and increased public education. (4 refs.) - *J. K. Wyatt.*

406 Epilepsy: New research, new concepts of treatment. *Medical World News,* 11(10):28-31,34-36, 1970.

Exhaustive diagnosis to determine specific individual therapy is needed for each patient with epilepsy. Since 2 of 3 epileptics have more than one type of seizure, seizure-specific anticonvulsants are usually ineffective for a different type of attack and may produce more severe seizures if mistakenly prescribed. Although blood level determinations should be made on all epileptic patients in order to determine medication and dosage, such tests are not generally available in clinical service. Drugs are generally prescribed at the toxic level and then decreased until seizure control is maintained with minimal side reactions. Epilepsy appears to have a highly individualized nature, and the reactions of patients to anticonvulsants is also quite variable. In one study, control of generalized seizures was achieved in diphenylhydantoin-treated patients at plasma levels ranging from 3.1 mg to 52 mg/cc. Extraneous medications may produce unexpected toxic symptoms or reduce the effectiveness of an anticonvulsant. Seizure control was related to severity of seizures in a study aimed at discovering why some patients respond to treatment and others do not. Mild seizures were controllable and severe ones presented control difficulties. The most important indications of whether response to treatment would be good were frequency, duration, and number of types. Although the EEG is used to select optimum therapy, it provides only a gross estimate of seizure-connected electrical events in the central nervous system. (No refs.) - *J. K. Wyatt.*

407 **LOMBROSO, CESARE T.; & ERBA, GIUSEPPE.** Primary and secondary bilateral synchrony in epilepsy: A clinical and electroencephalographic study. *Archives of Neurology,* 22(4):321-334, 1970.

To distinguish between primary and secondary bilateral synchrony in epilepsy, 122 tests with intravenously administered thiopental sodium were made in a heterogeneous group of 82 patients with generalized seizures, bilateral "spike-and-wave" EEG discharges, and various degrees of neurological involvement. A study of the group according to clinical criteria and a comparison of their EEG responses to the thiopental disclosed specific differences related to neurological deficit or type of brain involvement and predictive of surgical outcome. Clinical and EEG data for selecting candidates for surgical ablation were unreliable when there were signs of focal and widespread brain involvement. The thiopental test was of great help in lateralizing the epileptogenic lesion and determining the extent of brain involvement. (58 refs.) - *B. Berman.*

Children's Hospital Medical Center
Boston, Massachusetts 02115

408 **HOROWITZ, MARDI J.; COHEN, FREDDA M.; SKOLNIKOFF, ALAN Z.; & SAUNDERS, FRANK A.** Psychomotor epilepsy: Rehabilitation after surgical treatment. *Journal of Nervous and Mental Disease,* 150(4):273-290, 1970.

Temporal lobectomy in medically uncontrollable epilepsy may provide seizure relief in 80% of selected cases, but psycho-social rehabilitation may require prolonged psychotherapy. Surgical side-effects are not uncommon and pre-existing cognitive impairments may be worse after surgery. Less relief from seizure, but also smaller psychometric decrement, occurs with localized brain lesions by stereotactic implantation of depth electrodes. In 18 Ss so treated, 3 were seizure-free and 8 experienced improvement. Psychotherapy must focus on defining identity, establishing suitable interactive patterns with family and friends, and overcoming "magical" implications of epilepsy. Depressive and paranoid responses after surgery commonly reflect identity-revision struggle and can be overcome. Scales have been devised to record clinical judgments of personal satisfaction, pervasive negative effects (shame, guilt, etc.), dependency, communication difficulties, and other psychopathological variables before and after surgery. In general, identity concepts in epilepsy develop in the context of the illness. When

seizures begin in childhood or adolescence, retarded maturation and impaired academic and social development pose serious familial and pedagogical problems. (17 refs.) - *B. Berman.*

Mt. Zion Medical Center
San Francisco, California 94115

409 **VIUKARI, N. M. A.** Ammonium chloride as an adjuvant to diphenylhydantoin therapy, and bulk ions in the CSF and serum in forty mentally subnormal epileptics. *Journal of Mental Deficiency Research*, 14(2):155-167, 1970.

In 40 MR epileptics treated constantly with one anticonvulsant (diphenylhydantoin), administration of sodium bicarbonate elevated the mean sodium level in cerebrospinal fluid (CSF). Subsequent administration of ammonium chloride (to induce inverse shifts in the chloride-sodium balance) increased the CSF-chloride level and brought the sodium-chloride ratio markedly closer to the normal range. Sodium bicarbonate and ammonium chloride intake yielded no significant difference in CSF sodium, potassium, and calcium but did cause notable alterations in CSF-chloride and serum-calcium levels; ammonium chloride induced intoxication signs in 6 Ss. The apparent disrupting effect on sodium activation of the adenosine triphosphatase-enzyme system by the diphenylhydantoin-to-sodium-electrolyte ratio across brain cells was noted, as were the parallel effects of electrolyte changes caused by that ratio and ammonium chloride. Further studies are needed in management of seizures and the rehabilitation of MR epileptics. (29 refs.) - *B. Berman.*

University of Helsinki
Helsinki, Finland

410 **GUMPERT, JOHN; HANSOTIA, PHIROZE; & UPTON, ADRIAN.** Gelastic epilepsy. *Journal of Neurology, Neurosurgery and Psychiatry*, 33(4):479-483, 1970.

Lesions in the hypothalamic region may be associated with the development of gelastic (laughing) epilepsy. A 13-year-old female who had developed normally to age 5 was found, on admission, to have gradual failure of vision and an IQ (WISC) of only 86. The S was diagnosed with retinitis pigmentosa. A major convulsion occurred a year later, and further seizures, impaired speech, withdrawal, increasingly poor vision, and a drop in IQ to 71 ensued. At age 20, the S was again admitted after major convulsions and seizures. Stereotyped repetitive episodes of limb movement, rigidity, and crackling laughter were noted. EEG activity during laughter attacks was conspicuously absent. The clinical symptoms responded to intravenous diazepam (Valium). Although no clear evidence of a hypothalamic lesion was present, the deterioration in IQ over a 4-year period may be indicative of brain damage. (38 refs.) - *M. S. Fish.*

National Hospital for Nervous Diseases
Queen Square, London, England

411 **POLLEN, DANIEL A.; & TRACHTENBERG, MICHAEL C.** Neuroglia: Gliosis and focal epilepsy. *Science*, 167(3922):1252-1253, 1970.

The decisive element in post-traumatic focal epilepsy is hypothesized to be neuroglial functional degradation, particularly in spatial buffering and active uptake of potassium. Brain slices of scar tissue from Ss with epilepsy fail to extrude sodium and take up potassium. In addition, various defects (structural, vascular, metabolic) likely to impair potassium buffering and uptake have been demonstrated in, or are strongly suggested for, epileptogenic glial scars. The hypothesis offers new therapeutic and prophylactic approaches to post-traumatic epilepsy different from present therapy, which is directed against the convulsive activity associated with the scar rather than against the scarring process. Agents are needed to combat the inflammatory process adjacent to glial scarring. Biochemical understanding of the gliotic scar process might help prevent the extreme scarring which results in focal epileptic discharge. (21 refs.) - *B. Berman.*

Massachusetts General Hospital
Boston, Massachusetts 02114

MEDICAL ASPECTS – Chromosomal

412 **DANIEL, WILLIAM L.** Aberrant serum protein inheritance in a patient with a ring D chromosome. *Pediatrics*, 46(1):120-122, 1970.

A 12-year-old MR Caucasian boy with peculiar facies, microencephaly, an inherited protein anomaly, and a ring D chromosome suggested a possible connection between the protein deficiency and a chromosomal deletion. The mother had had recurrent schizophrenia; the boy was born prematurely, had micrognathia, showed a small skull and beak-like face, and was SMR. Approximately 67% of his peripheral leukocytes contained centric rings apparently derived from a D chromosome. Attempts to identify the post-transferrin protein-band deficiency with haptoglobin, transferrin, ceruloplasmin, or the major immunoglobulin groups failed. (9 refs.) - *B. Berman.*

Illinois State University
Normal, Illinois 61761

413 **SINGER, HOWARD; & SCAIFE, NONA SUZANN.** Simultaneous occurrence of ring "G" chromosome and group "B" pericentric inversion in the same individual: Case report and review of the literature. *Pediatrics*, 46(1):74-83, 1970.

A 6-week-old boy, referred for failure to gain weight, revealed chromosomal abnormalities (late-replicating G ring and a pericentric inversion of a B chromosome) and brings up the question of the etiologic meaning of chromosomal breaks and their connection with phenotypic disease. The phenotypic difference in this case from previous cases was attributable to late replication of the ring or the apparent variability in ring size (possibly partial trisomy/partial monosomy or pericentric inversion, rather than deletion, of the abnormal B chromosome). Karyotype abnormalities were apparently non-familial, and both the inversion and the ring were a result of multiple, random, parental abnormal breaks. The patient, when hospitalized, showed abnormal facies, was mildly tachypneic, had normal blood count and urinalysis, and was hyperactive but had symmetrical reflexes. At present, he continues to show growth retardation with uncertain developmental prognosis. (102 refs.) - *B. Berman.*

K.I. Sawyer Air Force Base
Michigan 49843

414 **WEBER, FELICE M.; DOOLEY, RICHARD R.; & SPARKES, ROBERT S.** Anal atresia, eye anomalies, and an additional small abnormal acrocentric chromosome (47,XX,mar+): Report of a case. *Journal of Pediatrics*, 76(4):594-597, 1970.

A 2½-year-old girl with an imperforate anus, bilateral microphthalmia, and preauricular skin tags was noted to have a 47,XX,mar+ karyotype with an additional late replicating acrocentric chromosome smaller than a G-group chromosome. This constellation of symptoms is similar to that described in 6 other cases, 4 of whom were also MR. Family studies in this case did not reveal any origin for the acrocentric chromosome although the pattern is suggestive of a partial trisomy. (7 refs.) - *E. L. Rowan.*

UCLA School of Medicine
Los Angeles, California 90024

415 **JUBERG, RICHARD C.; GILBERT, ENID F.; & SALISBURY, ROBERT S.** Trisomy C in an infant with polycystic kidneys and other malformations. *Journal of Pediatrics*, 76(4):598-603, 1970.

An infant with non-mosaic group-C trisomy and multiple congenital malformations lived for 1 hour after birth. She had a flattened nasal bridge, epicanthic folds, micrognathia, low-set ears, cleft palate, hyperextensible joints, bilateral hip dislocations, hypoplastic lungs, polycystic kidneys with a rudimentary urinary tract, and cystic ovaries. This

appears to be the first viable infant with this syndrome. (23 refs.) - *E. L. Rowan.*

University of Oregon Medical School
Portland, Oregon 97201

416 **FERGUSON-SMITH, MALCOM A.** Chromosomal abnormalities II: Sex chromosome defects. *Hospital Practice,* 5(4):88-93, 97-100, 1970.

The 2 sex chromosomes (X and Y) are more susceptible to disorder or damage than the autosomes and, therefore, create more disease by themselves than all the other 44 put together. Strangely, X-chromosome disorders are *less* damaging, so that affected individuals live longer and therefore require more medical attention. Loss of a single autosome is seldom compatible with life. In contrast, since only 1 X chromosome is genetically active in humans, monosomy X individuals may survive into adult life. X is more than a sex chromosome: it carries other than sex traits; it carries greater genetic weight, and its total absence is lethal. The Y, in contrast, seems altogether sex-oriented, and half the human race lives without it. Current research reveals a still undetermined association between sex chromosome abnormalities and MR: the incidence of anomalies among the MR is 4 times more than that expected by chance. The full range of sex chromosome defects and pathogenetic mechanisms is described. (No ref.) - *B. Berman.*

University of Glasgow Institute of Genetics
Glasgow, Scotland

417 **DALLAPICCOLA, B.; & MALACARNE, P.** Bone abnormalities and XYY syndrome. *Lancet,* 1(7641):311-312, 1970. (Letter)

Two 47,XYY karyotype cases illustrate a possible association between the YY syndrome and bone abnormalities. The first patient, first described when he was 15 years of age, subsequently developed several YY features (great stature and aggressive behavior). The second, a 65-year-old man with myocardial infarction, was selected for chromosome analysis because of his great size and other YY features. Neither patient showed eterotopic bone formation beneath the origin of the adductor muscles. (3 refs.) - *B. Berman.*

University of Ferrara
44100 Ferrara, Italy

418 From unripe egg after 35, mongolism? *Medical World News,* 11(3):27, 1970.

There is a greatly increased incidence in chromosome 21 trisomy and consequent Down's syndrome in children born to women over 35 years of age. The hypothesized explanation—premature rupture of the graafian follicle and fertilization of an enzymatically immature oocyte— is supported by LeJeune's discovery that Down's syndrome in children of female carriers of translocated 21 chromosome occurs 20 times more frequently than in children whose fathers had the same defect. In older women, ova may respond to hormonal alterations by premature follicular release; attachment of chromosome 21 to another autosome will delay its participation in the latter's reduction division, thus causing the genetic anomaly. (No refs.) - *B. Berman.*

419 **DEY, JUDITH.** Survey of 500 cases of Down's syndrome. *Australian Journal of Mental Retardation,* 1(5):154-159, 1971.

A survey of 500 Ss with Down's sydrome showed an age range of 3 weeks to 62 years (57% < 10 years), with 54% males. Seven were twins (6 with a normal twin, and 2 with a stillborn twin); there were also 2 brothers, 2 sisters, a mongol brother and sister, and 1 mongol girl who had 2 mongol sisters). There was no seasonal variation for birth; 83% of mothers (maternal age at birth ranged from 14-50 years) was in good health at time of conception, the remainder had such ailments as influenza, colds, morbilli, varicella, or rubella. Of 160 chromosomal examinations, 93.2% was standard trisomy G. Compared with other surveys, birth weights were generally lighter and gestational periods shorter. Nineteen (3.8%) Ss had had seizures; of these, 14 were epileptic (the low epilepsy incidence was attributed to the large number living at home rather than in institutions). Of the 487 Ss for whom there were height measurements,

83% was at or below the tenth percentile; of the 441 for whom head circumference was recorded, only 44 (9.98%) were greater than the tenth percentile. During the survey period (4 yrs, 9 mos), 18 Ss died and 23.5% showed congenital heart lesions. There were only 15 Ss over age 3 years with an IQ above 55. (21 refs.) - *B. Berman.*

Grosvenor Hospital
Sydney, New South Wales, Australia 2130

420 **VANHAELST, L.; HAYEZ, F.; BONNYNS, M.; & BASTENIE, P. A.** Thyroid auto-immune disease and thyroid function in families of subjects with Down's syndrome. *Journal of Clinical Endocrinology and Metabolism*, 30(6):792-797, 1970.

A study of 83 families with at least one child with Down's syndrome indicates some non-specified thyroid anomaly as a risk factor in the origin of Down's syndrome. In all families, the mothers showed an unusual aggregation of thyroid diseases, a high incidence of thyroid autoantibodies, and an atypical pattern [normal serum protein-bound iodide (PBI), decreased butanol-extractable fraction (BEI), and greatly elevated non-extractable iodine-NBEI] of the serum-iodinated proteins. In the 83 mothers, 16% of pregnancies ended in spontaneous abortions. Several mothers showed a high occurrence (28%) of thyroid antibodies. PBI levels showed no difference between 137 relatives of Down's syndrome Ss and 106 normal controls. The unusually high NBEI levels in most of the Ss with Down's syndrome and in half of their close relatives probably reflected a genetic, transmissible metabolic defect (carrying chromosomal risk for offspring) behind the thyroid antigen responsible for the auto-immune process and the abnormalities in synthesis or secretion of thyroid hormone. (47 refs.) - *B. Berman.*

University of Brussels
Brussels, Belgium

421 **SKAKKEBAEK, NIELS E.** Hormones and the XYY male. *Lancet*, 1(7653):949-950, 1970. (Letter)

Sperm analyses and testicular biopsy should accompany the determination of blood and urinary levels of luteinizing hormone (LH) in XYY males. A recent report of an institutionalized XYY male with high levels of this hormone included the finding of high levels in 2 of 5 control males (normal chromosomal complement) of the same institution. The occurrence of high levels of LH, however, has been associated with primary testicular failure, castration, Klinefelter's syndrome, and oligospermia; impaired spermatogenesis and damage to seminiferous tubules have, in turn, been reported for a number of XYY males. As a consequence, gonadal function should be assessed for XYY males before significance of high LH levels can be associated directly with the chromosomal abnormality. (7 refs.) - *M. S. Fish.*

Pacific Northwest Research Foundation
Seattle, Washington 98104

422 **KUCERA, JIRI.** Down's syndrome and infectious hepatitis. *Lancet*, 1(7646):569-570, 1970. (Letter)

The reported association of Down's syndrome with infectious hepatitis has been confirmed by 2 recent observations. Of a total of 15,500 cases of congenital malformations (including 1,049 cases of Down's syndrome) observed during a 6-year period, a striking association between congenital liver abnormalities and Down's syndrome was noted; these abnormalities are about 20 times more common in children with Down's syndrome than in children with other congenital abnormalities. Among mothers of children with the syndrome, contact with infectious hepatitis around the time of conception occurred at a significantly greater rate for mothers of children with the syndrome than for those of normal children. These results and the fact that epidemics of Down's syndrome have occurred between those of hepatitis suggest that children of carriers of hepatitis virus may be at risk. (1 ref.) - *M. S. Fish.*

Teratology Unit U.P.M.D.
Prague, Czechoslovakia

423 **WILLIAMS, E. R.** Bone abnormalities in the XYY syndrome. *Lancet*, 1(7646):570-571, 1970. (Letter)

A recent case of delayed adolescence and bone development in a male with an XYY chromosomal

complement suggests that cases of observed epiphyseal growth abnormalities should be followed by chromosomal studies. The S, a 17-year-old male (Wechsler IQ, 82) presenting with knock-knee due to osteochondrosis deformans tibias (Blount's disease) showed delayed development of sexual characteristics; radiographic estimation of bone-age was 12-14 years. Chromosomal analysis indicated a 47,XYY pattern. Treatment with testosterone propionate (25 mg, 3 times/week, intramuscularly), followed by consecutive epiphysiodeses of the medial part of the upper tibial epiphysis and osteotomy of the upper tibia of each leg produced satisfactory results — erect posture and complete epiphyseal fusion by the age of 19. Blount's disease has been associated previously with gonadal dysgenesis but not with the XYY karyotype. In the present case the delayed age of puberty may have been a general effect of the chromosomal anomaly. (8 refs.) - *M. S. Fish.*

Bristol Royal Infirmary
Bristol BS2 8HW, England

424 **PAWLIGER, DAVID F.; BARROW, MARK; & NOYES, WARD D.** Acute leukemia and Turner's syndrome. *Lancet*, 1(7660):1345, 1970. (Letter)

The reported association of 2 cases of acute leukemia with Turner's syndrome tends to encourage speculation about possible leukemogenic influence of hormonal changes and genetic abnormalities. Prospective and retrospective studies of large numbers of patients with Turner's syndrome should indicate whether or not this association with leukemia is more than a chance occurrence. One of the Ss was a prematurely born female with normal intellect but retarded growth and sexual development. At 14 years, X-rays indicated the presence of Turner's syndrome. The chromosome karyotype was 45,XO; buccal smears contained 8-11% Barr bodies. Secondary sexual characteristics and menses developed after cyclic administration of 2.5 mg/day of conjugated equine estrogens. Acute lymphocytic anemia responsive to chemotherapy was diagnosed at the age of 20 from peripheral blood and bone marrow assays after the S became lethargic and easily fatigued. (1 ref.) - *M. S. Fish.*

University of Florida College of Medicine
Gainesville, Florida 32603

425 **SHAPIRO, LAWRENCE R.** Hormones and the XYY male. *Lancet*, 1(7660):1347, 1970. (Letter)

A follow-up evaluation of a recently reported case of an XYY male with elevated serum luteinizing hormone (LH) levels has shown that the sperm count and testicular biopsy specimens from the S were normal. The initial report had prompted a suggestion that, when LH levels in these cases are elevated, the S should be examined for impaired gonadal function since associations between the elevated hormone levels and primary testicular failure have been observed in Ss other than XYY males. Despite the lack of corroboration of this association in the present case, future observations of elevated LH levels in XYY males should probably be accompanied by an evaluation of testicular function. (2 refs.) - *M. S. Fish.*

Letchworth Village
Thiells, New York 10984

426 **JACOBS, PATRICIA A.; BRUNTON, MURIEL; FRACKIEWICZ, ANNA; NEWTON, MARJORIE; COOK, PETER J. L.; & ROBSON, ELIZABETH B.** Studies on a family with three cytogenetic markers. *Annals of Human Genetics*, 33(4):325-336, 1970.

Three distinct cytogenetic markers that have been observed and studied in a family are: a translocation between a chromosome No. 1 and the long arm of a C-group chromosome [46,t(1q+;Cq-)]; a complement of 45 chromosomes with a Robertsonian translocation between 2 group-D chromosomes [45,D-,D-,tDqDq)+]; and a large secondary constriction on a No. 1 chromosome (46,lh+). The propositus had likely inherited the constricted No. 1 chromosome from his paternal grandmother and the t(1q+;Cq-) translocation from his paternal grandfather. Both the father and a female sib of the propositus also carried these 2 markers, the first known demonstration of crossing over during meiosis. One male sib had only the secondary constriction; the other carried only the translocation. The Robertsonian translocation was found in the husband of an affected (1q+;Cq-) paternal great aunt of the propositus. Six pregnancies resulting from the marriage of these individuals, each carrying a separate translocation, produced 1 abortion, 3 males (1 with normal chromosomes and 1 with the

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father's translocation), and 2 phenotypically normal females with both translocations. One of these females had a son with both translocations. This finding is also believed to be unique. No individuals studied had an unbalanced form of either translocation. The segregation ratio of abnormal and normal chromosomes was not found to differ significantly from the expected 1:1 ratio. Conceptional histories did not indicate any significant increase in abortions or stillbirths for the Dq,Dq translocation. The Iq+;Cq- translocation may be associated with a slight increase in mortality; however, histories of the 2 females with both translocations show a significant increase in fetal wastage, possibly due to the loss of zygotes carrying 1 or both unbalanced forms of the translocations. (4 refs.) - *M. S. Fish.*

Western General Hospital
Edinburgh, England

427 **CAO, ANTONIO; FALORNI, A.; & de VIRGILIIS, S.** Erythrocyte enzymes in Down's syndrome. *Lancet*, 1(7653):951, 1970. (Reply to letter by Rosner)

In response to Rosner's criticism, it is pointed out that the relationship between enzymes and chromosome abnormalities is not clear. The one gene-one enzyme theory may, in genetic diseases, be complicated by various genetic interactions, and observed abnormalities may result from expressions of gene complexes producing a combination of effects including inhibitory and stimulatory activity. As a consequence, attempts to explain such phenomena as leukocyte and erythrocyte enzyme changes in Down's syndrome are not well supported by evidence. (6 refs.) - *M. S. Fish.*

University Pediatrics Clinic
Perugia, Italy

428 **ROSNER, FRED.** Erythrocyte enzymes in Down's syndrome. *Lancet*, 1(7653):951, 1970. (Letter)

A recent report that changes in glucose-6-phosphate dehydrogenase (G-6-PD) in Down's syndrome are associated with genes on the extra 21-chromosome is questioned on the basis of previous evidence that the structural gene for G-6-PD is, instead, located on the X chromosome, although the possibility might exist that a regulator gene for the enzyme may be located on the 21 chromosome. (1 ref.) - *M. S. Fish.*

Maimonides Medical Center
Brooklyn, New York 11219

429 **LIND, J.; VUORENKOSKI, V.; ROSBERG, G.; PARTANEN, T. J.; & WASZHOCKERT, O.** Spectrographic analysis of vocal response to pain stimuli in infants with Down's syndrome. *Developmental Medicine and Child Neurology*, 12(4):478-486, 1970.

Pain-induced cries from 30 infants with Down's syndrome (documented trisomy 21-22) were compared with pain cries from 120 normal infants. The cries from the infants with Down's syndrome showed longer latency, greater length, lower minimum and maximum pitches, and greater frequencies of flat melody form, biphonation, stuttering voice, and nasality than did those from normal infants. Spectrographic analysis may become a useful tool in the early diagnosis of chromosomal abnormalities. (28 refs.) - *E. L. Rowan.*

University of Oulu
Oulu, Finland

430 **OSTWALD, P.; PELTZMAN, P.; GREENBERG, M.; & MEYER, J.** Cries of a trisomy 13-15 infant. *Developmental Medicine and Child Neurology*, 12(4):472-477, 1970.

Pain-stimulated cries from an infant with 13-15 trisomy were analyzed on a sound spectrograph. They were characterized by an unusually hard or abrupt onset, a quavery or unsteady pitch, a marked drop in pitch at the end, and a raspy, snorting noise near the end. The acoustical properties were very similar to those of cries of Ss with Down's syndrome. Further studies may shed more light on the neuromotor patterning of vocal behavior. (10 refs.) - *E. L. Rowan.*

University of California School of Medicine
San Francisco, California 94122

431 **HARVEY, P. W.; MULDAL, S.; & WAUCHOB, D.** Antisocial behavior and a large Y chromosome. *Lancet*, 1(7652):887-889, 1970. (Letter)

A case is cited of a boy (apparently with average intelligence) with a long history of disruptive and antisocial behavior in whose family all the males have an unusually large Y chromosome and show a criminal record (although only for trivial matters); the 2 females in the family have unblemished reputations. Apparently, the additional Y chromatin or associated internal restructuring makes a significant contribution to the S's destructive behavior. Each case, however, must be studied separately. Identification of an additional Y chromosome is simple, but it is difficult to determine definitely that it is enlarged. (6 refs.) - *B. Berman.*

Paterson Laboratories
Manchester, England

432 **WALKER, FRANK A.** Epidemic of Down's syndrome? *Lancet*, 1(7655):1059, 1970. (Letter)

MacKay and Weir's figures on mongolism in Northern Ireland suggest there may have been an epidemic of Down's syndrome in the 1950's. It would be of interest to determine correlations with peaks in other reportable diseases (hepatitis or Hashimoto's thyroiditis). Unless there was relative overdiagnosis of Down's syndrome, these data suggest a very definite change, in the past 20 years, in incidence of the syndrome. (7 refs.) - *B. Berman.*

Marquette School of Medicine
Milwaukee, Wisconsin 53233

433 **SHAPIRO, LAWRENCE R.** Hormones and the XYY syndrome. *Lancet*, 1(7647):623, 1970. (Letter)

Hormonal analysis in a retardate with a 47,XYY chromosomal make-up (the only one with this karyotype in a group of 4,000 MRs) showed that several factors (one of which may be the number of Y chromosomes) influence the level of luteinizing hormone. The S's urinary excretion of follicle-stimulating hormone was between 50 and 100 mouse-uterine units/24 hours (normal blood level, 6-50 units); his serum-testosterone level was 483 ng/ 100 ml (normal, 400-1,200 ng/100 ml). (6 refs.) - *B. Berman.*

Cytogenetics Laboratory
Thiells, New York 10984

434 **EVANS, E. P.; FORD, C. E.; CHAGANTI, R. S. K.; BLANK, C. E.; & HUNTER, H.** XY spermatocytes in an XYY male. *Lancet*, 1(7649):719-720, 1970. (Letter)

An apparently non-mosaic 47,XYY 30-year-old male (IQ 74) is the eighth reported case in which all the primary spermatocytes have an apparently normal 46,XY karyotype. Testicular-biopsy material showed most spermatogonia with 46 chromosomes, but some showed 47. The presence of a single Y chromosome in the spermatocytes can be explained by assuming: the loss of a Y chromosome to be a random event; the 46,XY germ-cell has a strong proliferative advantage over the 47,XYY; and 47,XYY spermatocytes, if formed, do not develop to the point of diakinesis. Although no evidence is yet available that meiosis occurs in a 2-Y chromosomal human germ-cell, it has been shown that murine XYY spermatogonia can produce spermatocytes that reach at least first metaphase and may yield sperm. (13 refs.) - *B. Berman.*

Medical Research Council Radiobiology Unit
Harwell, England

435 **HULTEN, MAJ.** Meiosis in XYY men. *Lancet*, 1(7649):717-718, 1970. (Letter)

Abnormal findings in testicular biopsy specimens from 3 XYY males run counter to a previous report of only normal primary spermatocytes in such males. Spermatogonial metaphases, presenting chromosomes of varied structure and degrees of contraction, fell into 3 main types, with positive evidence of mosaicism in the metaphases of the first type (the others could not be evaluated). These findings confirm previous observations that a great many primary spermatocytes in XYY males have only one Y chromosome; some of these, however, may possibly retain the second

Y and thus be able to produce 24,XY and 24,YY spermatids and sperm. (6 refs.) - *B. Berman.*

Karolinska Sjukhuset
Stockholm, Sweden

436 **HSU, LILLIAN Y.; SHAPIRO, LAWRENCE R.; & HIRSCHHORN, KURT.** Meiosis in an XYY male. *Lancet,* 1(7657):1173-1174, 1970. (Letter)

A case is cited of a 24-year-old XYY individual, in whom peripheral-leukocyte and fibroblast cultures of skin and testicular biopsies revealed a 47,XYY karyotype. From meiotic preparations, 35 primary spermatocytes at diakinesis and 14 spermatogonial metaphases were examined. The latter showed cells with 46, 47, 48, and 49 chromosomes, indicating, possibly, a repeated non-disjunction of the Y chromosome during early differentiation. Spermatogonial cells with extra Y's are, apparently, eliminated before the first meiotic division. (5 refs.) - *B. Berman.*

Mount Sinai School of Medicine
New York, New York

437 **WILSON, MIRIAM G.; TOWNER, JOSEPH W.; COFFIN, GRANGE, S.; & FORSMAN, IRENE.** Inherited pericentric inversion of chromosome No. 4. *American Journal of Human Genetics,* 22(6):679-690, 1970.

A pericentric inversion of chromosome No. 4 was observed in 3 generations of normal individuals. A child in the fourth generation had an abnormal chromosome No. 4, MR and congenital anomalies which were not specific for any recognized syndrome. The child's abnormal chromosome was morphologically different from the inversion chromosome in the carrier ancestors. A significant number of family members, all of whom had normal phenotypes, showed the pericentric inversion, however; frequency of congenital malformations, fetal deaths, or infertility had not increased within the family. Unbalanced crossover products due to chiasmata formation within the inverted segment of chromosome No. 4 may be infrequent. (22 refs.) - *J. K. Wyatt.*

University of Southern California
Los Angeles, California 90033

438 **STENE, JON.** Statistical inference on segregation ratios for D/G-translocations, when the families are ascertained in different ways. *Annals of Human Genetics,* 34(1):93-115, 1970.

Estimation of the risk rates for D/G-translocation carriers of having offspring who have Down's syndrome or are phenotypically normal D/G-translocation carriers is based on data from 38 families. Only one parent was a carrier. Observations were made on phenotypical and cytological levels. Families were ascertained through unselected cases of Down's syndrome, through family data of a S with Down's syndrome which indicated other Ss with Down's syndrome in the family, and through Ss with Down's syndrome born by young mothers. Inhomogeneities of segregation ratio were not found in the offspring of female carriers. Segregation ratios in Ss with Down's syndrome and Ss without Down's syndrome varied in the offspring of male carriers. Risk rate for the offspring of carrier males was less than that for the offspring for carrier females. Estimate of the risk rate for Ss with Down's syndrome for female carriers was 0.10 ± 0.02. A corresponding estimate could not be made for male carriers because of a detected inhomogeneity. This inhomogeneity was not detected for the conditional segregation of phenotypically normal individuals in translocation carriers and karyotypically normal individuals. This conditional segregation was equal in the offspring of male and female carriers and was not different from the ratio 1/2. (47 refs.) - *J. K. Wyatt.*

University of Copenhagen
Copenhagen, Denmark.

439 **ANGELL, R.; GIANNELLI, F.; & *POLANI, P. E.** Three dicentric Y chromosomes. *Annals of Human Genetics,* 34(1):39-50, 1970.

Apparent dicentric Y chromosomes were observed in 3 female patients with ovarian dysgenesis. In 2

patients, the abnormal chromosome contained the intact long arm of the Y in duplicate. Gonadectomy in these 2 patients revealed 1 case of a single sterile testicular tubule in the right gonad, and 2 cases in which the left gonads were sterile 'streaks'. The short arm of the Y seemed present in duplicate in the third patient. Cytological methods used included sex chromatin, chromosomal analysis and measurements, and autoradiography. The patients displayed mosaicism with 2 cell lines. One line had 46 chromosomes and was clearly dicentric in most cells; the other was a 45,X line. (29 refs.) - *J. K. Wyatt.*

*Guy's Hospital Medical School
London, England

440 **PUJOL-AMAT, P.; ESTEBAN-ALTIRRIBA, J; VANRELL-DIAZ, J.; TEJERO, A.; ORIOL-BOSCH, A.; RIBAS-MUNDO, J.; & PRATS-VINAS, J.** Testicular feminizing syndrome and "pure" gonadal dysgenesis. *American Journal of Obstetrics and Gynecology*, 106(5):736-749, 1970.

A normal male 46,XY karyotype was found in 4 patients with testicular feminizing syndrome and in 1 patient with pure gonadal dysgenesis. Urinary steroid analyses performed on one patient prior to and following gonadectomy revealed high urinary estrogens which decreased after gonadectomy. Although this suggests that the estrogens had a gonadal origin, this factor was not confirmed by *in vitro* studies of the gonads. Secondary sexual development was absent in these patients who were of normal height or taller. The somatic congenital anomalies which characterize Turner's syndrome were not present. Genitals generally consisted of a hypoplastic vulva, a vagina, a small uterus, Fallopian tubes, and bilateral "streak" gonads in the position of the ovaries. There was an accumulation of 17-OH progesterone and dehydroepiandrosterone out of progesterone and pregnenolone, respectively. Progesterone and pregnenolone served as substrates for the synthesis of testosterone. (63 refs.) - *J. K. Wyatt.*

Hospital de San Pablo
Barcelona, Spain

441 **KADOTANI, TETSUJI; OHAMA, KOSO; NAKAYAMA, TOSHIHIKO; & TABUCHI, AKIRA.** Chromosome studies in primary sterility. *American Journal of Obstetrics and Gynecology*, 106(4):489-491, 1970.

Of 88 couples with primary sterility (no pregnancy over 3 years of marriage), chromosomal anomalies were found in 3 wives and 3 husbands from 6 couples. Incidence of chromosomal abnormality was 6.8%. Two wives showed a 46,XX,3p-q- karyotype, and one had a 46,XX,1p-q- karyotype. Two husbands had an unusually long Y chromosome (46,XY,q+). One husband had a constitution (47,XXY) characteristic of Klinefelter's syndrome. This S had rudimental gonads which did not show spermatogenesis. (10 refs.) - *J. K. Wyatt.*

Hiroshima University
School of Medicine
Hiroshima, Japan

442 **STENCHEVER, MORTON A.; & JARVIS, JANE A.** Lysergic acid diethylamide (LSD): Effect on human chromosomes in vivo. *American Journal of Obstetrics and Gynecology*, 106(4):485-488, 1970.

No significant increase in chromosomal gaps, breakage, or abnormal forms was found in 12 individuals who had ingested lysergic acid diethylamide (LSD) and an 18-month-old child born to an LSD user when compared with a control group of 8 adults. With one exception, LSD Ss had not been exposed to the drug for at least 6 months prior to chromosomal analysis. Number of exposures to LSD ranged from 2 to approximately 70, and average dose exposure ranged from approximately 250 mg to 1,000 mg. Although these Ss had used other drugs, admitted usage was limited. (8 refs.) - *J. K. Wyatt.*

Case Western Reserve University
School of Medicine
Cleveland, Ohio 44106

443 **BOCZKOWSKI, KRZYSZTOF.** Pure gonadal dysgenesis and ovarian dysplasia in sisters. *American Journal of Obstetrics and Gynecology*, 106(4):626-628,, 1970.

Data on the sibship occurrence of pure gonadal dysgenesis and ovarian dysplasia in 2 sisters and other cases indicate that when factors which lead

to the development of pure gonadal dysgenesis are less severe, they cause testicular dysgenesis in genetic males or ovarian dysplasia in genetic females. Both sisters (CAs 17 and 25 yrs) had primary amenorrhea and exhibited positive sex chromatin patterns and 46,XX karyotypes. (14 refs.) - *J. K. Wyatt.*

Medical Academy
Warsaw, Poland

444 **LARSON, STEPHEN L.; AARO, LEONARD A.; & TITUS, JACK L.** Monosomy of a G chromosome in spontaneous abortions. *American Journal of Obstetrics and Gynecology*, 106(4):622-623, 1970.

Monosomy of a G chromosome was found in a spontaneous abortion of 10 weeks gestation from an apparently healthy 23-year-old woman. Tissue culture of embryonic tissue, sex chromatin analyses, and chromosomal analyses of the dividing cells in culture were performed on the abortus. The chromosomal pattern was 45,XX,G-. It was not possible to establish whether the missing G chromosome was from the twenty-first or the twenty-second pair. Sex chromatin was positive for the nuclei of cells grown in tissue cultures. (5 refs.) - *J. K. Wyatt.*

Mayo Clinic
Rochester, Minnesota 55901

445 **FALEK, ARTHUR; CRADDICK, RAY; & COLLUM, JULIUS.** An attempt to identify prisoners with an XYY chromosome complement by psychiatric and psychological means. *Journal of Nervous and Mental Disease*, 150(3):165-170, 1970.

In a prison population of 506 who were at least 6 feet in height, psychological and psychiatric examinations yielded 25 who were referred for cytogenetic studies; 15 had an XXY/XXXY mosaic, but none had an XYY complement. Later follow-up of tall Ss with acne revealed 1 S with the XYY karyotype. He was 28 years old, had a verbal IQ of 77 and performance IQ of 99, had had severe acne since age 18 and presented a normal EEG and loose cognitive associative linkages. Environmental and social demands elicited impulsive and immature responses. The S did not fit the aggressive psychopathic personality associated with this chromosomal defect. Proper identification procedures to discover if an "XYY personality type" exists in a criminal population should include cytogenetic investigation of all prisoners (regardless of height), with complete examination of all "XYY" cases and a definition of psychological qualities. Such a profile might permit identification and prevention before incarceration. (12 refs.) - *B. Berman.*

Emory University
Atlanta, Georgia 30306

446 **LISGAR, FREDRICA; GERTNER, MELVIN; CHERRY, SHELDON; HSU, LILLIAN Y.; & HIRSCHHORN, KURT.** Prenatal chromosome analysis. *Nature*, 225(5229):280-281, 1970. (Letter)

Prenatal chromosomal analysis on fibroblasts cultured from amniotic fluid proved successful in intrauterine detection of fetal aberrations in 19 of 21 women with a high risk of having abnormal offspring. Reasons for amniocentesis included LSD use, previous trisomy-21 and retarded progeny, and familial dysautonomia. Fibroblasts were cultured at various gestation stages; cells were grown in 5 media types and explanted by 4 methods. The procedure requires only a short culture period and the cells can be used for enzyme and protein assays in addition to chromosomal analysis. (4 refs.) - *B. Berman.*

Mt. Sinai School of Medicine
New York, New York 10029

447 **NEURATH, P.; DeREMER, K.; BELL, B.; JARVIK, L.; & KATO, T.** Chromosome loss compared with chromosome size, age and sex of subjects. *Nature*, 225(5229):280-281, 1970. (Letter)

In a study of the relation between chromosome counts and age, microscopic analysis of 7,067 metaphase cells of 139 normal Ss (CAs 2 wks to 93 yrs) showed hypodiploidy to be essentially, at all ages, a function of chromosome size. Small differences due to sex and age occurred only for the A and the G/Y chromosomes; frequency of loss of small acrocentrics was great for all groups

but greatest for older males. Reasons for observed chromosome losses have not been found. (10 refs.) - *B. Berman.*

Tufts New England Medical Center
Boston, Massachusetts 02111

448 **KADOTANI, TETSUJI; OHAMA, KOSO; SOFUNI, TOSHIO; & HAMILTON, HOWARD B.** Aberrant karyotypes and spontaneous abortion in a Japanese family. *Nature,* 225(5234):735-737, 1970. (Letter)

A family is cited in which spontaneous abortions apparently stemmed from chromosomal aberrations involving translocation. The proband, a 43-year-old female, was mentally and physically normal as was her husband; in 21 years of married life, she had had 3 spontaneous abortions, each at 3 months' gestation. The S and her brother showed 2 unusual extra chromosomes tentatively regarded as heteromorphic partners of the B5 and C11 chromosomes. The husband and one son consistently showed 45 chromosomes, with an abnormal chromosome resulting from a translocation between a D and G. Recent cytogenetic studies have shown that various translocations can be transmitted through several gestations. Many individuals with balanced translocations appear phenotypically normal. Frequent spontaneous abortions probably result from parental translocations. However, where only one parent has the translocation, abortions may result from some factor other than chromosomal aberration. (20 refs.) - *B. Berman.*

Hiroshima University School of Medicine
Hiroshima, Japan

449 **GALL, J., JR.; GARN, S. M.; HARPER, MARY; & STIMSON, C. W.** Non-random chromosome losses in Down's syndrome. *Nature,* 227(5257):499-500,1970. (Letter)

Studies of chromosomal losses in institutionalized trisomy-21 Down's syndrome Ss showed G-chromosome loss in Down's syndrome to be the same as in euploid (46-chromosome) individuals and revealed no marked degree of mosaicism for euploid cells in these Ss. Chromosomal preparations were made from human leukocyte cultures, and 1,158 cells with 47 chromosomes were counted. (6 refs.) - *B. Berman.*

University of Michigan
Ann Arbor, Michigan 48104

450 **KAPLAN, ARNOLD, R.; & ZSAKO, STEVEN.** Biological variables associated with mothers of children affected with the G_1-trisomy syndrome (Down's syndrome). *American Journal of Mental Deficiency,* 74(6):745-755, 1970.

Detailed family histories of 50 mothers and 50 fathers of Down's syndrome children and of a similar number of age-matched controls have shown that mothers of G_1-trisomy-affected children display familial fetal-growth abnormalities and immunological and protein-metabolism differences which are reflected in children with MR and multiple malignancies. Mothers and fathers of the children with Down's syndrome showed dermatoglyphic stigmata, including higher occurrence of simian crease; the mothers revealed more frequent occurrence of low protein-bound iodine, positive cephalin-flocculation tests, thyroid autoantibodies, and elevated anti-streptolysin-O titers. A mother's predisposition for a G_1-chromosomal nondisjunction (resulting in Down's syndrome children) involves multiple factors which are congenital and acquired later in life (most significant of which are maternal-age-related changes and hormonal, immunologic and metabolic peculiarities). (75 refs.) - *B. Berman.*

Cleveland Psychiatric Institute
Cleveland, Ohio 44109

451 **PENROSE, L. S.; & LOESCH, DANUTA.** Comparative study of sole patterns in chromosomal abnormalities. *Journal of Mental Deficiency Research,* 14(2):129-140, 1970.

The usefulness of a topological method of classifying dermatoglyphic sole patterns is demonstrated by comparing samples of D, E, and G trisomies and "cri du chat" (Bp-) syndrome with 600 feet from control Ss. Sex-chromosomal anomalies (X, XX, and XXX females; and XY, XXY and XYY males) were also investigated. Since all the pattern elements can be analyzed simultaneously by this

method, it permits clear and comprehensive definition of any group's peculiarities, and succinct description of each anomaly's characteristic pattern. Comparisons with samples of autosomal and sex-chromosomal abnormalities provide illustrations of this method. (11 refs.) - *B. Berman.*

Harpersburg Hospital
St. Albans, England

452 **PENROSE, L. S.; & LOESCH, DANUTA.** Topological classification of palmar dermatoglyphics. *Journal of Mental Deficiency Research*, 14(2):111-128, 1970.

A descriptive formula for classifying palmar patterns is presented that might be especially useful in pathological comparisons and genetic studies. The method incorporates many traditional ideas and uses topological principles by describing all loops and enumerating all triradii. A European control sample of 250 males and 250 females (1,000 hands) from the normal population is presented as a dictionary that provides frequencies of separate elements and of their combinations. The new method is illustrated by comparisons with samples of autosomal (D,E and G trisomies and cri-du-chat) and sex-chromosomal (X, XX, XXX, XY, and XYY) abnormalities. (8 refs.) - *B. Berman.*

Harpersbury Hospital
St. Albans, England

453 **MILUNSKY, A.; HACKLEY, BETTY M.; & HALSTEAD, J. A.** Plasma, erythrocyte and leucocyte zinc levels in Down's syndrome. *Journal of Mental Deficiency Research*, 14(2):99-105, 1970.

Fifteen Ss with Down's syndrome showed significantly low plasma zinc ($p<.001$), erythrocyte zinc ($p<.01$) and normal leukocyte content when compared with 21 normals. No relation was noted between age and sex and leukocyte zinc levels, neither was there a relation between zinc levels and the extra chromosome material in Ss with Down's syndrome. The normal leukocyte zinc level was in contrast to the low level in myeloid leukemia, which occurs in Down's syndrome 10 to 20 times more frequently than in the general population. All Ss lived at home, and none showed signs of liver disease or abnormalities or overt bacterial infection. (28 refs.) - *B. Berman.*

Tufts University School of Medicine
Boston, Massachusetts 02111

454 **RICHARDS, B. W.; RUNDLE, A. T.; ZAREMBA, J.; & STEWART, A.** Ring chromosome 18 in a mentally retarded boy. *Journal of Mental Deficiency Research*, 14(2):174-186, 1970.

A 14-year-old MR boy, who had a ring-18 chromosome and whose family history showed no relevant abnormalities, presented no obvious malformations beyond the customary clinical picture of reduced head size, micrognathia, oblique palpebral fissures, and club foot. Other features frequently found in these cases (congenital heart disease, hip dislocation, and abnormal EEG) were missing. IQ on the Minnesota Preschool Scale was 51 verbal and 54 non-verbal. Forty cells from blood culture had 46 chromosomes, but each cell contained a small ring (its size suggested it was a ring-18 chromosome) remarkably constant in size and appearance; it appeared to undergo mitosis without the mechanisms observed in other cases. (20 refs.) - *B. Berman.*

St. Lawrence Hospital
Caterham, Surrey, England

455 **RERRICK, E. G.** Mosaic XXX/XXXX sex chromosome complement: Case report and review of literature. *Journal of Mental Deficiency Research*, 14(2):141-148, 1970.

A case of a 33-year-old MR female (IQ 31) with mosaic 47,XXX/48,XXXX chromosomal complement illustrates the physiognomic features of the quadruple-X anomaly and serves to distinguish it clinically from Turner's syndrome. The S presented infantile internal genitalia, no menstruation, small breasts with widely spread nipples, and scanty axillary and pubic hair. X-ray examination showed android pelvis and persistence of the secondary epiphysis of the iliac and ischial bones. Dermatoglyphics showed that the total ridge count of the fingers was 30, the sum of the *atd* angles was 85°, the left palmar axial triradius was in the t' and the right was in the *tu* position. She displayed

repeated temper tantrums, self-abuse, and violence. No MR relatives were recorded, and the parents were not related. No definite diagnostic somatic, biochemical, or psychological features could be established for the syndrome. Each case must be identified by buccal mucosa smear and chromosomal analysis. (12 refs.) - *B. Berman.*

Pineland Hospital and Training Center
Pownal, Maine 04069

456 **HABERLAND, CATHERINE.** Subacute sclerosing panencephalitis in Down's syndrome. *Journal of Mental Deficiency Research,* 14(2):106-110, 1970.

The first recorded case of subacute sclerosing panencephalitis (SSPE) in a S with Down's syndrome (trisomy 21) raises the possibility that the chromosomal abnormality plays a role in the pathogenesis of this disorder. At the age of 3 years the S could neither stand nor walk and could make only sounds or noises. At autopsy 3½ years later and after 5 months of progressive deterioration, the brain showed characteristic astrocyte proliferation, astrofibrosis, and minor myelin changes. SSPE was concealed by severe psychomotor retardation and noted only shortly before death. The clinical picture included convulsive seizures, pathologic reflexes, quadriparesis, hypertonicity, visual impairment, and choroiditis. Periodic EEG bursts of high-voltage slow complexes were considered diagnostic for SSPE. Recent studies have suggested a relationship between SSPE and measles. (4 refs.) - *B. Berman.*

Illinois State Psychiatric Institute
Chicago, Illinois 60612

457 **ALPER, CHESTER A.; ABRAMSON, NEIL; JOHNSTON, RICHARD B., JR.; JANDL, JAMES H.; & ROSEN, FRED S.** Increased susceptibility to infection associated with abnormalities of complement-mediated functions and of the third component of complement (C3). *New England Journal of Medicine,* 282(7):349-354, 1970.

A S with Klinefelter's syndrome and lifelong increased susceptibility to infection had grossly deficient serum complement-mediated functions. No abnormalities in humoral antibody production, cellular immunity, or leukocyte function were present. All known aspects of immunity were intact except for those mediated by the complement system. The serum complement component of C3 ($\beta_{1\ c}$- globulin) was less than 1/3 normal—the bulk of which was in the form of the inactive conversion product, C3b. All other serum complement components were normal. Addition of small amounts of normal serum, but not purified C3, to the S's serum improved all complement-mediated functions *in vitro*, suggesting that there is deficiency of one or more substances in the S's serum which are likely not complement components. An inborn deficiency of a protein necessary for C3 stability *in vivo* and *in vitro* is the most likely explanation for the findings in the S and the S's serum. (32 refs.) - *C. L. Pranitch.*

Children's Hospital Medical Center
Boston, Massachusetts 02115

458 **MENOLASCINO, FRANK J.** Down's syndrome: Clinical and psychiatric findings in an institutionalized sample. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 8, p. 191-204.

A retrospective study of 95 Down's syndrome patients has confirmed recent chromosomal findings of 3 different cytogenetic subgroupings in this syndrome (with distinct metabolic differences in each grouping) and suggests a reassessment of the behavioral stereotypes of these retardates. Physical and neurological examinations, evaluation of stigmata, and dermatoglyphic assessments showed no distinct differences in type or frequency of stigmata or in dermatoglyphs among the groups, but 43% showed associated congenital anomalies. 58.9% were moderately retarded, 35.8% were severely retarded and 37% were emotionally disturbed. Twenty-five Ss displayed one or more abnormal EEGs, and 9 of these Ss were emotionally disturbed. Clinical-historical findings showed little difference in age distribution between the disturbed and nondisturbed groups. A close correlation was found between the initial reasons for hospitalization and current psychiatric status of the emotionally disturbed (56 having been admitted as "at risk" as to future emotional adjustment). Types of psychiatric disturbance included chronic brain syndrome with behavioral reaction

and with psychotic reaction, childhood-adjustment reactions, psychoneurotic adjustments, Propf-schizophrenic reactions, and personality-trait disturbance. Both inpatient and outpatient services are needed for patients of this type. (32 refs.) - *B. Berman.*

459 **LINTERMANS, JOHN P.** Gonadal dysgenesis and hypoplastic left heart syndrome. *Journal of Pediatrics*, 76(6):979, 1970. (Letter)

A case report is presented of a 2-day-old negress with hypoplastic left heart syndrome, with both mitral and aortic atresia associated with gonadal dysgenesis. Apparently, this is the first literature report of such a situation. This adds to the list of associated lesions previously reported for Turner's syndrome. (1 ref.) - *E. Kravitz.*

Universite Lovanium
B.P. 123, Kinshasa XI
Republic of Congo

460 **KOHN, G.; TAYSI, K.; ATKINS, T. E.; & MELLMAN, W. J.** Mosaic mongolism. I. Clinical correlations. *Journal of Pediatrics*, 76(6):874-879, 1970.

Based on a study of 5 children and 3 adults with mosaic trisomy 21 (46/47, 21^+), no correlation was observed between intelligence and the percentage of trisomic cells in cultured tissues. There was no significant support for the hypothesis that a better intellectual development may be expected for persons with clinical trisomy 21 and mosaicism than for those with trisomy 21 without mosaicism. (41 refs.) - *E. Kravitz.*

Children's Hospital of Philadelphia
Philadelphia, Pennsylvania 19146s,

461 **TURNER, J. HOWARD; CHARLES, DAVID; & RANKIN, JOEL S.** Karyotypic aberrations in chromatin positive individuals with primary ovarian failure. *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 77(6):536-543, 1970.

Forty phenotypic females with primary amenorrhea and clinical ovarian failure who had chromatin positive buccal smears were subject to karyotypic examination. Twenty-four showed a normal karyotype, 7 were structural mosaics, 8 had numerical mosaics (45X), and 1 showed no relation between karyotypic pattern and clinical features. (19 refs.) - *E. L. Rowan.*

University of Pittsburgh
Pittsburgh, Pennsylvania 15213

462 **BOCZKOWSKI, KRZYSZTOF.** Further observations on the syndrome of pure gonadal dysgenesis. *American Journal of Obstetrics and Gynecology*, 106(8):1177-1183, 1970.

All cases of pure gonadal dysgenesis are eunuchoid women with primary amenorrhea. Karyotype may be normal male or normal female, but clinically, the difference is not distinguishable. The physical characteristics of Turner's syndrome are not present. If the sex chromatin pattern is positive, laparotomy is not absolutely necessary since fertility is impossible and hormonal substitution gives a good clinical response. If the sex chromatin pattern is negative, then laparotomy should be performed since the incidence of neoplasm and dysgenetic testes is high in these individuals. (78 refs.) - *E. L. Rowan.*

Medical Academy
Warsaw, Poland

463 **GOLDSTEIN, ARTHUR; HAUSKNECHT, RICHARD; HSU, LILLIAN Y.; BRENDLER, HERBERT; & HIRSCHHORN, KURT.** Sex chromosome mosaicism in 3 sibs: Clinical and pathological aspects. *American Journal of Obstetrics and Gynecology*, 107(1):108-115, 1970.

Family studies of a woman with primary amenorrhea and absent secondary sex characteristics revealed 2 siblings who, like the proband, had sex chromosome mosaicism. A phenotypic sister also had primary amenorrhea and a 3-year history of developing secondary sex characteristics. At laparotomy, she was found to have an infantile uterus, streak gonads, and a large estrogen-producing gonadoblastoma. A phenotypic brother with perineal hypospadius was found to have rudimentary uterus, tubes, vagina, and testes at laparotomy. The proband had had an ovarian tumor resected. Cytogenetic evaluation is mandatory in cases of abnormal gonadal development

because of the malignant potential of the Y chromosome line. (16 refs.) - *E. L. Rowan.*

Mount Sinai School of Medicine
New York, New York 10029

464 **BOCZKOWSKI, K.** Presence of dysgenetic testes in eunuchoidal females. *American Journal of Obstetrics and Gynecology,* 107(2):319-320, 1970.

Four clinical females with primary amenorrhea and lack of breast development were found to have intra-abdominal dysgenetic testes at laparotomy. All had 46,XY karyotypes but eunuchoidal habitus and female external genitals. The dysgenetic testes had no hormonal influence. (7 refs.) - *E. L. Rowan.*

Medical Academy
Warsaw 1, Poland

465 **TAYLOR, ANGELA I.** Further observations of cell selection *in vivo* in normal/G trisomic mosaics. *Nature,* 227(5254):163-164, 1970. (Letter)

Different distributions of trisomic and normal cells in different tissues and even within the same tissues present problems in interpretation and classification of mosaic Down's syndrome Ss. Cytological examination of blood cells and biopsy specimens of skin from a group of 13 infants, 2 children, and 3 adults with Down's syndrome revealed that, of 12 Ss whose skin was studied, 6 had almost identical proportions of cells in both tissues and 6 had a great excess of trisomic cells in skin. Longitudinal studies of blood cells revealed that in 7 infants (5 girls and 2 boys) normal cells increased with age and in 5 infants (3 boys and 2 girls) trisomic cells increased with age. An apparently random fluctuation appeared for 1 male S. No change in cell proportions was noted for the 3 adults. In 1 infant, blood and skin values were about the same at 2 months of age, but at 26 months, the proportion of normal cells increased markedly in blood but remained constant in skin. Halves of a single biopsy specimen taken from this S showed selection for normal cells in one portion and large random fluctuations in the other. One adult female who had normal phenotype and had a son with Down's syndrome had 98% normal cells in blood and skin; however, only 11.5% and 8%, respectively, of the normal fibroblast-like cells were found in biopsies from the right and left ovaries. (3 refs.) - *M. S. Fish.*

Guy's Hospital Medical School
London, England

466 **UDALOV, G. A.; & CHERTKOV, J. L.** Bone marrow transplantation in irradiated monkeys: Chromosome aberrations in donor cells. *Nature,* 226(5249):956-958, 1970. (Letter)

Transplantation to irradiated monkeys of bone marrow cells appears to be associated with chromosomal aberrations, indicating that irradiation produces factors which can cause this injury. Baboons and rhesus monkeys, exposed to ^{60}Co γ-irradiation in doses of 800-1,500 rads, were given autologous or allogeneic bone marrow (2.5×10^8 viable nucleated cells/kg body weight) 1½ to 2 hours after irradiation. Karyotypes carried out 2 to 4 days after irradiation indicated the presence of numerous chromatid breaks, translocations, and fragmentation of chromosomes in the monkey cells exposed directly to the irradiation; however, chromatid and isochromatid breaks were observed in 7 to 30% of cells of the bone marrow donor at 11 to 15 days after irradiation. The number of cells with gaps also increased among cells undergoing repopulation. The number of injured cells was reduced at 3 weeks after irradiation. These chromosomal injuries were not self-reproducing and were lost at the first mitosis. The results indicate that chromosomal aberrations in irradiated animals may not always occur only in those cells which are irradiated directly. (6 refs.) - *M. S. Fish.*

Central Institute of Hematology
and Blood Transfusion
Moscow A-167,
Union of Soviet Socialist Republics

467 In pursuit of the Y chromosome. *Nature,* 226(5249):897, 1970. (Editorial)

The recent discovery that quinacrine dihydrochloride stains the stem end of the Y chromosome and produces a brightly-fluorescing area has resulted in several major advances in cytogenetics and promises additional ones. The chemical, used as an antimalarial, has recently provided a method to distinguish male- from female-determining spermatozoa in humans and can provide prompt assay

techniques to assess various attempts to separate the 2 types of spermatozoa. The dye has enabled investigators to demonstrate that the short arm rather than the stem of the Y chromosome is associated with the X chromosome in meiosis. The material has also afforded a time-saving procedure for determining the XYY chromosome pattern in males, an assessment previously requiring the time-consuming procedure of culturing leukocytes, followed by karyotypic analysis. Individual differences in the uptake of the dye by certain of the autosomes have also been noted. (No refs.) - *M. S. Fish.*

468 **BARLOW, PETER; & VOSA, C. G.** The Y chromosome in human spermatozoa. *Nature,* 226(5249):961-962, 1970. (Letter)

The presence of a highly fluorescent area (F-body) in certain human sperm stained with quinacrine or quinacrine mustard is interpreted as being due to the presence of Y chromosomes, thus suggesting a procedure to differentiate Y-bearing from X-bearing sperm. Human spermatazoa were placed on slides, dried, washed with ethanol, and stained for 20 minutes with either quinacrine (0.5 or 1%) or quinacrine mustard (0.005%). When viewed under fluorescent light, nearly one-half of the stained spermatozoa had F-bodies within the bulk of the yellow-green fluorescent areas. The fact that fluorescence from the quinacrine mustard fades less rapidly than does that from the other dye likely accounts for the observed lower frequency of F-bodies in sperm stained with the latter material. F-bodies, when present, were found at the boundary between the dense and less dense chromatin about 60% of the time; the remainder was distributed equally throughout the chromatin with several lying next to the membrane of the head. The evidence that the F-body represents the Y chromosome is supported by observations of cells of normal XY males, XYY males, and normal XX females in which 1, 2, and 0 F-bodies, respectively, were found. (14 refs.) - *M. S. Fish.*

Guy's Hospital Medical School
London, SE1, England

469 **PEARSON, P. L. & BOBROW, M.** Definitive evidence for the short arm of the Y chromosome associating with X chromosome during meiosis in the human male. *Nature,* 226(5249):959-961, 1970. (Letter)

The observation that quinacrine dihydrochloride stains the distal ends of the long arm of the human Y chromosome has been utilized to demonstrate that the short rather than the long arm of the Y chromosome associates with the X chromosome during the first meiotic prophase. Diakinetic cells obtained in testicular biopsies from a normal male population were stained with the dye and viewed with a Leitz microscope fitted with a light source and a vertical illuminator. Examination (which utilized both phase contrast and ultraviolet light) of a group of 50 cells from a normal male showed that, in all cases where X and Y chromosomes were found associated, the region of highest fluorescence was situated at one end of the sex bivalent rather than in an interstitial position. The dye produces the characteristic fluorescence in meiotic cell preparations throughout all stages of spermatogonia through to mature spermatozoa, and the technique can also be utilized to determine the number of Y chromosomes present in the resting state nuclei of buccal mucosa cells. (13 refs.) - *M. S. Fish.*

MRC Population Genetics Unit
Old Road, Headington, Oxford, England

470 **NEU, RICHARD L.; ASSEMANY, SALMA REGINA; & GARDNER, LYTT I.** "Cat eye" syndrome with normal chromosomes. *Lancet,* 1(7653):949, 1970.

A 3½-year-old girl exhibited the clinical features of the "cat-eye" syndrome (occipital-head flattening, vertical coloboma of the left iris, hypoplastic nose bridge, high-arched palate, and low-set ears) but a normal karyotype (46,XX); both parents also showed normal karyotypes. In a "cat-eye" case reported previously, a brother, maternal uncle, and grandmother exhibited chromosomal mosaicism, with one cell line showing an extra chromosome; the mother had the extra chromosome in all metaphases and a low IQ. In the present case, there was no evidence of an abnormal cell line in examined tissue. (3 refs.) - *B. Berman.*

State University of New York Upstate Medical Center
Syracuse, New York 13210

471 **HENCHMAN, D. C.; GREY, JULIENNE; CAMPBELL, J. B.; & NANCE, SUE.** Klinefelter's syndrome with mosaicism trisomy-18. *Australian Paediatric Journal*, 6(3):142-145, 1970.

A first reported Australian case of sex-chromosome abnormalities (Klinefelter's syndrome) in association with (C and 18) mosaicism involves a male child delivered by breech birth and presenting, at birth, a flaccid condition, poor breathing, wide-set eyes with folds beneath them, and numerous physical anomalies. In a few days, he became limp, developed a systolic murmur, and required tube feeding. Later, he showed an enlarged heart; radiographs showed abnormalities of the phalanges and metacarpals. He died suddenly at age 27 months with post-mortem showing associated pneumonia and multiple heart and kidney anomalies. Chromosomal studies showed karyotypes 47,XXY and 48,XXY,18+; each had an extra C chromosome; the 48,XXY had an additional chromosome indistinguishable from one of the number 18 chromosomes. Both parents showed normal karyotypes. (10 refs.) - *B. Berman.*

Canberra Hospital
Randwick, New South Wales, Australia

472 **LUBS, H. A.; & RUDDLE, F. H.** Chromosomal abnormalities in the human population: Estimation of rates based on New Haven newborn study. *Science*, 169(3944):495-497, 1970.

The largest survey of chromosomal complements in newborns ever carried out—4,500 infants born in New Haven (Connecticut) during one year—disclosed a 0.5% incidence of abnormal chromosomal makeup. Cord-blood leukocytes grown *in vitro* were prepared for cytological examination, and 2 cells from each infant were photographed, then idiogrammed. Where abnormalities were found, complete clinical and sociological data were recorded for infant and family. Successful chromosomal preparations, obtained from 97.4% of the infants, revealed abnormalities likely to cause various degrees of impairment. Methods for reducing the population load of chromosomal abnormalities include identification and removal of factors which increase the rate, amniocentesis and therapeutic abortion for identified high-risk groups, and determination of the chromosomal constitution of each fetus. (8 refs.) - *B. Berman.*

University of Colorado Medical Center
Denver, Colorado 80220

473 **TAYSI, K.; KOHN, G.; & MELLMAN, W. J.** Mosaic mongolism. II. Cytogenetic studies. *Journal of Pediatrics*, 76(6):880-885, 1970.

Chromosomal analysis of white blood cells over a period of 7 years revealed significant variation in the ratios of trisomic and normal cells in 7 persons with mosaic Down's syndrome (46/47, 21+). Thus, no dependable, quantitative relation between the trisomic cells of Ss with mosaic trisomy 21 and the phenotype of trisomy 21 could be established. Methodologic evaluation demonstrated the validity of white cell cultures in measuring the percent of trisomic cells among white cells at a given point in time. Therefore the variation occurred with time and was not a methodologic artifact. (21 refs.) - *E. Kravitz.*

Genetics Division
Children's Hospital of Philadelphia
Philadelphia, Pennsylvania

474 **DALY, RICHARD F.** Chromosome aberrations in 50 patients with idiopathic mental retardation and in 50 control subjects. *Journal of Pediatrics*, 77(3):444-453, 1970.

Chromosomal preparations from 50 MR patients with 3 or more anomalies and 50 phenotypically normal controls were examined for aberrations. Abnormalities were found in 8 patients, 1 of which was XXX. Three of the aberrations (a balanced translocation, a familial translocation, and a satellite on chromosome 17) were considered unrelated to MR. Two children with partial trisomy of a D chromosome, one with short arm deletion of a B chromosome (*cri-du-chat* syndrome) and one with a long arm deletion of a C chromosome, may represent cause-and-effect relationships. One control subject had sex-chromosome mosaicism. Further studies of this

type are necessary to identify possible chromosomal syndromes. (18 refs.) - *E. L. Rowan.*

University of Wisconsin
Madison, Wisconsin 53706

475 **ESPINER, ERIC A.; VEALE, ARTHUR M. O.; SANDS, VALERIE E.; & FITZGERALD, PETER H.** Familial syndrome of streak gonads and normal male karyotype in five phenotypic females. *New England Journal of Medicine,* 283(1):6-11, 1970.

Five phenotypic females, representing 3 different sibships in the same family, had normal male XY karyotypes and streak gonads at laparotomy. Clinically, the Ss showed tall stature and increasing height into the third decade. Estrogen excretion was low and did not respond to human chorionic/gonadotrophin stimulation, but adrenal androgen excretion was normal. This pure gonadal dysgenesis in 3 sisters and 2 nieces supports inheritance by influence of a single gene on an autosome or on the X chromosome. (33 refs.) - *E. L. Rowan.*

Princess Margaret Hospital
Christchurch 2, New Zealand

MEDICAL ASPECTS – Miscellany

476 **FIALKOW, PHILIP J.** X-chromosome inactivation and the Xg locus. *American Journal of Human Genetics,* 22(4):460-463, 1970.

A new test for inactivation of the X chromosome at the g locus indicates that this locus may not experience random fixed inactivation. A hemizygous normal phenotype appears in the blood cells of females heterozygous for hypoxanthine-guanine phosphoribosyltransferase (HGPRTase) deficiency. The blood cells most likely come from cells, all of which have the same X chromosome active (that with the normal HGPRTase allele). If there is an Xg allele in this active X chromosome, and an Xg^a allele in the inactivated X chromosome, then the inactive X hypothesis predicts an Xg(a-) phenotype in the red cells. Nevertheless, 3 females recorded in the literature (each heterozygous at both the HGPRTase and the Xg locus) were all Xg(a+). Synthesis of the Xg^a antigen apparently does not occur in the red cells themselves. (20 refs.) - *B. Berman.*

University of Washington
Seattle, Washington 98105

477 **LEFEBVRE, YVES.** Anatomical and functional changes induced by oral contraception. *Canadian Medical Association Journal,* 102(6):621-624, 1970.

Hormonal contraceptives produce varying effects on the cervix, ovaries, pituitary gonadotrophic function, fertility, chromosomes, and offspring. Glandular adenomatous hyperplasia of the endocervix results from the contraceptives, although they apparently do not directly influence cervical carcinoma or dysplasia. Ovarian changes after prolonged use of progestins include capsule thickening, arteriole hyalinization, follicular growth, stroma fibrosis, reduced DNA values, and a generalized inactive appearance. Pituitary effects, which depend on composition and total dosage of the agent, include oligomenorrhea, amenorrhea, monophasic cycles, and infertility stemming from anovulation after stopping the pill. Prolonged amenorrhea probably involves also hypothalamic dysfunction. Average time lapse between oral contraceptive termination and conception is 5.8 to 6.5 months. In one study of 481 pregnancies, 93 (18.1%) aborted. Abortuses and ova display increased polyploid tendency. Some increase in chromosomal breakage has been noted as well as major and minor abnormalities in infants of pill-taking mothers. A lapse of 6 to 8 months following termination of hormonal contraceptives seems advisable before a patient becomes pregnant. (37 refs.) - *B. Berman.*

Notre Dame Hospital
Montreal 24, Quebec, Canada

478 Salicylates and malformations. *British Medical Journal,* 1(5697):642, 1970. (Editorial)

Teratogenic properties of salicylates are known, but early studies involved high doses in laboratory animals. A retrospective study of women with malformed children showed a relationship of talipes and malformations of the alimentary tract and central nervous system with salicylate ingestion during the first 16 weeks of pregnancy; however, retrospective studies suffer from interviewer and subject bias. A large prospective study is now underway, and although it would be prudent to advise against heavy salicylate use during pregnancy, it is unlikely that the drug will prove to be a potent teratogenic agent. (8 refs.) - *E. L. Rowan.*

479 **DORRANCE, DAVID; JANIGER, OSCAR; & *TEPLITZ, RAYMOND L.** In vivo effects of illicit hallucinogens on human lymphocyte chromosomes. *Journal of the American Medical Association*, 212(9):1488-1491, 1970.

Illicit LSD or marijuana does not damage human lymphocyte chromosomes *in vivo*. Fourteen hospital inpatients were exposed to illicit LSD (all having taken it alone or with other drugs); 9 volunteers, who had not used other psychedelic drugs, were exposed to varying quantities of marijuana. Ten ml of peripheral venous blood were drawn from the LSD Ss into tubes containing heparin sodium; 1 ml was drawn from the volunteers. Among LSD users, 8 chromosomal breaks were found out of a total of 1284 metaphase analyses (0.76% mean break rate); the marijuana group showed a mean break rate of 0.79% (8 out of 1018 metaphase analyses). In no single case was the LSD break rate significantly different from the other group's break range. The series included a wide temporal spectrum (1½ hours to 3 months after ingestion) without significant abnormalities. The possibility remains, however, that differing results in other laboratories may result from cell-culturing differences and studies of the effects of pure and illicit LSD are not comparable. (18 refs.) - *B. Berman.*

*City of Hope Medical Center
Duarte, California 91010

480 **McGLOTHIN, WILLIAM H.; SPARKES, ROBERT S.; & ARNOLD, DAVID O.** Effect of LSD on human pregnancy. *Journal of the American Medical Association*, 212(9):1483-1487, 1970.

A study of 121 human pregnancies following parental ingestion of low, medically administered doses of LSD gave no evidence of an association between the LSD exposure and major congenital defects in offspring. LSD was given under medical and non-medical conditions, and the only increased risk appeared to be a higher incidence of spontaneous abortions among a small group (27) of women who received LSD under both conditions. The spontaneous abortion rate (15%) for the group limited to medical LSD administration was within the normal range. For both groups, more abortions were reported when the mother (or mother and father) received LSD than when the father alone received it. Pregnancy outcome showed no direct correlation with proximity of LSD exposure and time of conception. All Ss were exposed to pure LSD of known dosage, but the doses were small and the exposures infrequent. Since the number of pregnancies studied was small, the possibility exists of an alteration in frequency of some of the major anomalies that usually occur on the order of 1/1000 pregnancies. (19 refs.) - *B. Berman.*

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Los Angeles, California 90024

481 Link between LSD and birth defects reported. *Journal of the American Medical Association*, 212(9):1447-1448, 1970.

In 127 pregnancies (in 112 women) in which at least one, but usually both, parents admitted taking LSD before or after conception, 62 resulted in live births (6 with congenital abnormalities and 1 neonatal death), and 65 were aborted (7 spontaneous, 8 fetuses abnormal). The rate of central nervous system defects was about 16 times that in the general population. Failure of cortical fusion appeared in all abortion specimens. (No refs.) - *B. Berman.*

482 Oral feeding of human fetus: A possibility? *Journal of the American Medical Association*, 212(5):713,717, 1970.

Results of a study on 2 pregnant women suggest the possibility of feeding, and even administering drugs orally to, the human fetus. Human albumin

labelled with ^{131}I was injected directly into the amniotic cavity, then aspirated and reinjected 3 times to insure uniform distribution. A high radioactive titer in the thyroid glands, blood, and urine of the mother and the one normal fetus (the other S carried a dead fetus) indicated fetal swallowing, digestion, and absorption of albumin into the blood stream. Additional evidence has shown active intestinal absorption, not merely passive *in utero* diffusion. Results show that *in utero* digestion and intestinal absorption might supplement oral intrauterine fetal feeding in malnutrition caused by fetoplacental dysfunction. (1 ref.) - *B. Berman.*

483 **DESMOND, MURDINA M.; RUDOLPH, ARNOLD J.; & PINEDA, REBECCA G.** Neonatal morbidity and nursery function. *Journal of the American Medical Association*, 212(2):281-287, 1970.

A study of 6,211 infants born alive to mothers of low socioeconomic status showed that one-fourth had nursery morbidity (major malformation or illness signs) during the birth hospitalization. In terms of weight, this represented 1 of 5 infants weighing 5.5 lb at birth, and 2 of 3 of low birth weight. At discharge, 10% of the survivors had a known problem. Categories of infant morbidity are related to birth weight and Apgar scoring. In the nursery, health is equated with efficient adaptability, and the etiology of abnormal signs is often obscure, especially in survivors. Thus, there is insufficient coding and under-reporting of morbidity. A vigorous approach to neonatal sickness is needed and made possible by present knowledge of cold stress, asphyxia, shock, and respiratory insufficiency. This must be supplemented by centralized, functional nursery facilities based on the premise that the newborn is a true inpatient, comparable to a postsurgery patient. (11 refs.) - *B. Berman.*

Baylor College of Medicine
Houston, Texas

484 **HEALEY, L. A.** Serum uric acid and achievement—An explanation. *Journal of the American Medical Association*, 212(11):1960, 1970. (Letter)

A study of hyperuricemia and gout in Filipinos (the diseases being common among Filipinos living in the United States but not among those in the Philippine Islands) offers an alternative explanation to the traditional one of the association between social class or achievement and these pathologies. The study has shown a renal defect in 5 of 14 normal Filipino men which limits the kidney's ability to compensate for the greater purine load that United States Filipinos experience when they change their diet from rice to meat. The renal factor, if common to a population, could explain the higher uric-acid levels to be expected in those of higher social status as well as the correlation between obesity and serum uric acid found in many population studies. (9 refs.) - *B. Berman.*

No address

485 Violent crime and the E.E.G. *British Medical Journal*, 2(5703):193, 1970. (Editorial)

EEG abnormalities will distinguish murderers who are either insane or seemingly without motive from those who show a definite motivation; the former show an overwhelming preponderance of abnormal EEGs, while the latter show the same abnormalities as do neurotics or the prison population. Severity of EEG abnormality correlates with the degree of psychiatric disturbance—one group of aggressive psychopaths showed 65% EEG abnormality and a group of inadequate psychopaths showed only 32% abnormality. It is notable, however, that in the aggressive group (habitually violent and dangerous) about one-third had no EEG abnormality. When those with possible organic brain damage (head-injured, epileptics, and MRs) were excluded, there was 5 times the incidence of EEG abnormality in the habitual offenders as contrasted with the one-time offenders. In the latter, one must look for motivation in the life situation; in the habituals, cerebral physiology seems crucial. In respect to forensic applications of these findings, however, there is not a great deal, for abnormal EEGs usually merely confirm the clinical findings. (14 refs.) - *B. Berman.*

486 **ZUCKERMAN, JAMES E.; FALLON, VIRGINIA; TASHJIAN, ARMEN H., JR.; LEVINE, LAWRENCE; & FRIESEN, HENRY G.** Rapid, quantitative estimation of human placental lactogen in maternal

serum by complement fixation. *Journal of Clinical Endocrinology and Metabolism*, 30(6):769-773, 1970.

The simple and rapid serologic technique of complement fixation has demonstrated that human placental lactogen (HPL) can be quantitated in maternal serum from 9-40 weeks of gestatior and the range of HPL values is sufficiently narrow in normal pregnancy and the assay technique accurate enough to permit applicability in clinical determinations of abnormal obstetrical situations. Sera were obtained from unselected normal pregnant patients and from a high-risk group with a history of intrauterine death and indications of altered fetal growth in present pregnancies. Specificity of the assay was tested by comparison with sera from 3 normal males and 3 nonpregnant females and by serial determinations from a case of missed abortion; these control sera did not have any HPL serologic activity. A widely accessible method of determining HPL might yield an index for early detection of pregnancies subject to intrauterine growth retardation. (11 refs.) - *B. Berman.*

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487 **JAMES, WILLIAM H.** Neonatal death and birth order. *Annals of Human Genetics*, 33(4):385-394, 1970.

A recent survey of neonatal death (NND) rates has confirmed previous observations that rates initially decline steeply up to the third birth and subsequently increase. The study population was 27,528 pregnancies reported by 6,039 women on the island of Kanai, Hawaii. Stillbirth and NND (death within 1 month of birth) rates were comparable to those obtained from official data and were similar to those found in the United States. The initial decline appears to be associated with mechanical improvements in the birth canal caused by passage of the first infant. The occurrence of certain types of obstetric accidents decreases after the first birth. The subsequent rise in NND rates appears to relate to a variety of factors including fertility differentials (NND-prone women appearing to have more pregnancies, regardless of the outcome of the pregnancies) and environmental differentials (maternal environment of the multiparae being poorer than that of primiparae, even with social class controlled). A neonatal death may result in a slight tendency toward birth limitation. (16 refs.) - *M. S. Fish.*

University College
London, England

488 **SANSONE, G.; & VENEZIANO, G.** Erroneous administration of anti-D gammaglobulin to newborn children. *Lancet*, 1(7653):952, 1970. (Letter)

Recent observations indicate that the accidental administration to the newborn infant of anti-D γ-globulin (Rhogam) may not be associated with a high degree of risk for the infant. The Ss were 2 infants, erroneously given rhogam at 30 and 24 hours after birth, respectively. Follow-up of the first showed that a previously negative Coombs test had become positive and the moderate jaundice disappeared gradually. At 1 month, the condition was good with a weakly positive Coombs test and a moderately decreased red cell count. No abnormal clinical or hematological manifestations appeared in the second case. The direct Coombs test, initially negative in the cord blood, became positive and remained so up to the eighth day. (No refs.) - *M. S. Fish.*

Galliera Hospital
Genoa, Italy

489 **CARTER, C. O.** Multifactorial genetic disease. *Hospital Practice*, 5(5):45-59, 1970.

When mathematical models based on possible multifactorial genetic-environmental causes are used, studies of common diseases such as diabetes, ischemic heart disease, cleft lip, anencephaly, spina bifida, and schizophrenia have shown that actual incidence patterns in a number of such diseases can be predicted. Although the relative weight of the hereditary contribution varies, these disorders appear to result from the interaction of heredity and environment, as studies with identical twins have clearly shown; each disorder involves a sizable number of different hereditary and environmental influences, and the hereditary component appears to cause a genetic predisposition as a result of the activity of many genes. The predisposition creates a "threshold at risk" effect beyond which environmental influences can determine if an effect will result and, if so, the extent of it. Continued studies of biochemical abnormalities may eventu-

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ally provide considerably more information on the genetic contribution to these diseases and the high risk factors associated with them. Long-term investigations of individuals at high risk should afford information related to the environmental factors which turn risk into disease and, as a consequence, offer opportunities to reduce the incidence of these disorders. (No refs.) - *M. S. Fish.*

Medical Research Council
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490 DAKER, M. G. Chromosomes from hairs. *Lancet*, 1(7657):1174, 1970. (Letter)

Chromosome preparations from hair cells (moustache, beard, and eyebrow) have provided an accurate check of the chromosomal constitution in the adult male. Easy and rapid, the technique requires no sterile cell collection or culture. Suitable hairs are placed in a demecolcine solution for 2 hours, given a 10-minute hypotonic treatment in sodium-citrate solution, then fixated in acetic alcohol. A good preparation from the moustache will yield 10 to 40 cells at arrested metaphase. (7 refs.) - *B. Berman.*

St. Thomas's Hospital Medical School
London, England

491 EASTHAM, R. D.; & JANCAR, J. Mean red-cell volume and patient's age. *Lancet*, 1(7652):896-897, 1970. (Letter)

Routine blood counts for 419 non-anemic MRs aged 4-30 years (174 treated for epilepsy with phenobarbitone and 79 with Down's syndrome) revealed a direct correlation between mean red-cell volume and age up to age 30 years. Mean red-cell volume should be checked for normal individuals at different ages. (2 refs.) - *B. Berman.*

Frenchay Hospital
Bristol, England

492 The chemistry of thought. *Medical World News*, 11(7):41-43, 46-49, 1970.

Research (which involved the step-by-step investigation of the chemistry of the nerve cell and its surface, the effects of chemicals on groups of cells in the brain, and the study of gross behavioral effects) has investigated the relation between low levels of calcium and MR. A perfusion procedure was used to place an area of an animal's cortex under complete chemical control and allowed for the investigation of the way the brain learns to discriminate among the myriad stimuli that continually come to it. When the serum which bathes the neurons had a low calcium level, the influx of calcium necessary to release RNA was reduced, thus preventing the activity of response facilitating mechanisms. When levels of calcium were too high in the perfusion of nerve cells, the facilitating response was blocked. When the calcium in the cell was higher than on the outside, the facilitating response appeared. Brain function appeared due to a series of switches which permitted adaptational responses. Abnormalities in serum calcium levels have been associated with psychological disturbances and MR. (No refs.) - *J. K. Wyatt.*

493 CRIST, TAKEY; & HULKA, J. F. Influence of maternal epinephrine on behavior of offspring. *American Journal of Obstetrics and Gynecology*, 106(5):687-691, 1970.

Epinephrine (0.4 mg/kg) was administered subcutaneously daily to 10 rats during the first 6 days of pregnancy (Group A) and to 10 rats during the seventh to twelfth days of pregnancy (Group B). A control group (Group C) of 3 rats was given daily injections of saline solution. Six rats in Group A did not produce any offspring ($p<0.01$), and the weight of those produced was significantly lower ($p<0.01$). Mean litter size of Group B rats was not affected by the injections, but litter size was more variable than that in Group C. There were significant differences ($p<0.05$) in the behavior of the offspring of Groups B and C on the open field test and in times required to leave the home cage and reach food. These findings may be due to high levels of circulating epinephrine in pregnant animals which inhibited fetal oxygen uptake through constriction of the placental vessels. The brain damage produced by anoxic conditions may be responsible for the significant emotional and behavioral differences observed in the experimental animals. (50 refs.) - *J. K. Wyatt.*

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494 **HARDING, P. G. R.** Chronic placental insufficiency: An experimental model. *American Journal of Obstetrics and Gynecology*, 106(6):857-864, 1970.

Chronic hypoxia *in utero* may interfere to some extent with adaptation of the newborn because it may prevent the accumulation of energy reserves by the fetus. Intravenous injection of chorionic gonadotropin into 17 pregnant rabbits was used to expose their fetuses to chronic placental insufficiency produced by a gestation period prolonged by 15% (34 or 35 days). These fetuses were compared with 6 gonadotropin controls (30-day gestation period). Post-mature fetuses exhibited a significantly greater fetal/placental weight ratio ($p<.05$), reduced liver and cardiac glycogen concentrations ($p<.05$), increased blood and brain lactic acid concentrations of lipid in brown adipose tissue/gm of body weight ($p<.05$), and reduced pH ($p<.05$) than did the controls. (16 refs.) - *J. K. Wyatt.*

University of Western Ontario
London, Ontario, Canada

495 **KOYAMA, TSUNEMARO; HANDA, JYOJI; *HANDA, HAJIME; & MATSUMOTO, SATOSHI.** Methylnitrosourea-induced malformations of brain in SD-JCL rat. *Archives of Neurology*, 22(4):342-347, 1970.

Injection of methylnitrosourea (MNU) into pregnant rats on various gestation days showed teratogenic brain effects specific for the gestation stage when injection occurred. Mothers injected on days 9.0 produced embryos with exencephaly, encephalocele, and pallium hypoplasia. The group injected on day 9.5 showed a high incidence of hydrocephalus, with a secondary occurrence peak on day 11.5 producing hydrocephalus with a grossly different appearance. A group injected on day 12.5 presented severe microcephalus. Inhibition of brain development by MNU persists, with mothers treated as late as day 20.5 producing progeny with tremors, ataxia, and growth retardation. (11 refs.) - *B. Berman.*

*Kyoto University Medical School
Kyoto, Japan

496 **FRAME, MARION; MOLLISON, P. L.; & TERRY, WILLIAM D.** Anti-Rh activity of human γ-G4 proteins. *Nature*, 225 (5233);641-643, 1970. (Letter)

Analysis of functional similarities and differences among immunoglobulins may furnish insight into their biological-survival value and evolutionary development. Human red cells, sensitized with various blood-group antibodies and tested with antisera prepared against each of the 4 γ-G subclasses produced strong preliminary indications, in 2 of the sera, of anti-Rh activity partly attributable to γ-G4 molecules (the specificity of reactions being confirmed by inhibition tests). This reflected less differentiation among the subclasses for antibody specificity than previously thought and some biological significance relating to macrophage receptivity for the subclasses. (11 refs.) - *B. Berman.*

St. Mary's Hospital Medical School
London, England

497 **STEELE, MARK W.** Incomplete dosage compensation for glucose-6-phosphate dehydrogenase in human embryos and newborns. *Nature*, 227(5257):496-498, 1970. (Letter)

Early in embryonic life, random genetic inactivation of one X chromosome in each female cell achieves dosage compensation. Examination of 15 different diploid fibroblast strains in human embryos and newborns (maintained, for about 3 months, in continuous culture) has shown that some X-linked loci must escape dosage compensation. In crude glucose-6-phosphate dehydrogenase (G6PD) prepared from these cells, the mean specific activity for female G6PD far exceeded the normal male range; on starch gel electrophoresis, all G6PD samples migrated, as a distinct single band, towards the anode. There was no indication whether lack of complete G6PD dosage compensation reflects failure of uniform X-inactivation, but G6PD does have non-sex-related functions requiring X-inactivation and sex-related functions requiring non-X-inactivation—a dischotomy producing, in X-chromosome imbalances, skeletal and brain as well as sex-related abnormalities. (14 refs.) - *B. Berman.*

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Pittsburgh, Pennsylvania 15213

498 SRIDHARA RAMA RAO, B. S.; NARAYANAN, H. S.; CHANNABASAVANNA, S. M.; SRINIVAS, K. N.; & REDDY, G. N. N. Serum proteins in mentally retarded patients. *New England Journal of Medicine*, 283(10):542-543, 1970. (Letter)

Data from samples of blood obtained from institutionalized and noninstitutionalized MRs and nonretarded control Ss revealed that protein deficiency is not associated with MR. Chemical and electrophoretic separation of proteins in the sera was effected, and data revealed that MR levels of cholesterol and electrolytes did not show any variations from the controls. Only institutionalized Down's syndrome Ss showed hypoalbuminemia and hypergammaglobulinemia ($p<0.5$); other MR Ss did not show any significant variations from the controls. (4 refs.) - *C. L. Pranitch.*

All-India Institute of Mental Health
Bangalore, India

499 STENCHEVER, MORTON A.; FRANKEL, ROBERT S.; JARVIS, JANE A.; & VERESS, KORNELIA. Effects of chlordiazepoxide hydrochloride on human chromosomes. *American Journal of Obstetrics and Gynecology*, 106(6):920-923, 1970.

Incidence of breaks, gaps or abnormal forms in the chromosome did not increase when human leukocytes *in vitro* were exposed to concentrations of chlordiazepoxide of 0.1, 1.0, 10.0, and 100.0 $\mu g/cm^3$ for varying time periods. *In vitro* data were obtained from analyses of leukocyte cultures taken from 10 patients who were using chlordiazepoxide hydrochloride for therapeutic reasons. These were compared with the cultures of 6 control patients. Two series of *in vitro* studies were carried out on heparinized blood samples from 2 males and 1 female. Chlordiazepoxide hydrochloride did not seem to affect the growth rate of human fibroblasts in culture up to concentrations of 20.0 $\mu g/cm^3$. Growth rate decreased when concentrations reached 50.0 and 100.0 $\mu g/cm^3$. (10 refs.) - *J. K. Wyatt.*

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Cleveland, Ohio 44106

500 FRIEDMAN, EMANUEL A.; KASS, MARTIN B.; SACHTLEBEN, MARLENE R.; & ST. JOHN, ELIZABETH M. Placental oxygen consumption in vitro: IV. Variations with Apgar score. *American Journal of Obstetrics and Gynecology*, 107(1):1-5, 1970.

Placental oxygen consumption in 84 placentas from infants depressed at birth (Apgar score 0-2) was significantly higher than it was in placentas from 527 normal births. However, increasing gestational age and greater birth weight correlate with a lessening of placental oxygen consumption, and when these cases were corrected for these factors, the correlation with infant depression disappeared. (8 refs.) - *E. L. Rowan.*

Harvard Medical School
Boston, Massachusetts 02115

501 JOELSON, INGEMAR; BARTON, M. DENNIS; DANIEL, SALHA; JAMES, L. STANLEY; & ADAMSONS, KARLIS. A method for prolonged monitoring of physiologic functions during fetal life. *American Journal of Obstetrics and Gynecology*, 107(3):445-452, 1970.

Long-term monitoring of the intact sheep fetus was accomplished by the placement of an arterial catheter, esophageal thermistor, and subcutaneous electrocardiographic leads in the animal at hysterotomy. Concurrent maternal monitoring of acid-base state, oxygen tension of arterial blood, cardiovascular function and temperature was done in 8 preparations. The base deficit of fetal blood was lower than that of maternal blood, fetal arterial blood pressure rose during gestation, and the fetus had a higher body temperature than the mother. (15 refs.) - *E. L. Rowan.*

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Columbia University
College of Physicians and Surgeons
New York, New York 10032

502 STENCHEVER, MORTON A.; FRANKEL, ROBERT S.; & JARVIS,

JANE A. Effect of diazepam on chromosomes of human leukocytes in vivo. *American Journal of Obstetrics and Gynecology*, 107(3):456-460, 1970.

Chromosomal studies of peripheral blood lymphocytes were performed on 23 patients who had used diazepam from 0.5 to 36 months and on 8 controls. Only one patient showed a significant elevation in chromosome breakage (15.3%), and this returned to within normal range 6 months after discontinuation of the drug. Two other patients and one control showed quadriradials. Chromosomal damage by diazepam is not as striking *in vivo* as it is *in vitro*, but the drug should still be used with caution. (9 refs.) - *E. L. Rowan.*

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Cleveland, Ohio 44106

503 GUERRERO, RODRIGO; & LANCTOT, CLAUDE A. Aging of fertilizing gametes and spontaneous abortion: Effect of the day of ovulation and the time of insemination. *American Journal of Obstetrics and Gynecology*, 107(2):263-267, 1970.

When ovulation was determined by the day of temperature shift on basal temperature record, then there was no difference in distribution of 1,408 full-term infants and 107 abortions with regard to day of ovulation. The date of insemination as determined by coital record in these same individuals was plotted in relation to the day of temperature shift, and the results were suggestive of slightly increased risk of abortion when fertilization was several days before or after ovulation. This method may be of use in checking other hypotheses (such as with Down's syndrome) about the effects of delayed fertilization by aging of either gamete or sperm. (29 refs.) - *E. L. Rowan.*

Universidad del Valle Medical School
Cali, Colombia, South America

504 JOHNSON, WAYNE, L.; DEPP, RICHARD; & HUNTER, CHARLES A., JR. Comparison of spontaneous, oxytocin-stimulated, and hypertonic saline-induced labor by different methods of record analysis. *American Journal of Obstetrics and Gynecology*, 107(2):268-273, 1970.

Intrauterine pressure recordings made during active labor in 64 women were analyzed using mean pressure by electronic integration, Montevideo units, Alexandria units, and frequency distribution analysis of individual contractions. A comparison of spontaneous, oxytocin-induced, and hypertonic saline-induced labor showed that both induced types of labor produced contractions of higher amplitude and greater frequency than spontaneous labor. All methods of measurement showed the same results, but the integrated pressure method was recommended as the simplest way to monitor total uterine activity. (9 refs.) - *E. L. Rowan.*

Indiana University Medical Center
Indianapolis, Indiana 46202

505 STENCHEVER, MORTON A.; POWELL, WILLIAM; & JARVIS, JANE A. Effect of nalidixic acid on human chromosome integrity. *American Journal of Obstetrics and Gynecology*, 107(2):329-330, 1970.

Nalidixic acid in concentrations up to 100 μg/ml was found to cause no chromosomal damage in cultured human leukocytes. Nalidixic acid is known to affect DNA synthesis in *E. coli* but apparently not in intact human cells. It would be prudent to avoid its use during pregnancy, however. (4 refs.) -*E. L. Rowan.*

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506 HUISJES, H. J. Origin of cells in the liquor amnii. *American Journal of Obstetrics and Gynecology*, 106(8):1222-1228, 1970.

Harris-Shorr stained cells from amniotic fluid were compared with cells scraped from fetal sources. Eosinophilic cells came only from buccal mucosa and large cyanophilic cells from both this source and the vulva. Small round cyanophilic cells are shed by the urinary tract. Anuclear forms of these 3 types probably represent degeneration. Anuclear polygonal cells are shed by the epidermis. Material from the amnion and umbilical cord is represented only as pale blue conglomerations and pale structure-less cells respectively. Of the 108 samples of amniotic fluid from 75 gravidas, 83 were from Ss

with Rh sensitization and 18 were from normal pregnant women. (12 refs.) - *E. L. Rowan.*

University Hospital
Groningen, The Netherlands

507 **CURRIE, A. R.; BIRD, C. C.; CRAWFORD, ALLISON M.; & SIMS, P.** Embryopathic effects of 7,12-dimethylbenz(a)anthracene and its hydroxymethyl derivatives in the Sprague-Dawley rat. *Nature*, 226(5249):911-914, 1970.

Studies of the embryopathic effects in the Sprague-Dawley rat of various 7,12-disubstituted derivatives of the carcinogen, 7,12-dimethylbenz-(a)anthracene (DMBA), indicate that the 7-hydroxymethyl-12-methyl compound was more potent than was the parent 7,12-dimethyl substance, and that the 12-hydroxymethyl-7-methyl- and the 7-hydroxymethyl- derivatives did not exhibit this activity. Pregnancy was confirmed in female Sprague-Dawley rats after mating, and a single intravenous dose of 7-hydroxymethyl-12-methylbenzanthracene (2.5 mg/100 g maternal body weight) was administered to different groups from the second to the eighteenth day of pregnancy. Resorption rates increased consecutively up to 100% on the eighth day. Between the eleventh and fifteenth day, teratogenic effects were stunting, lordosis of cervical and upper thoracic parts of the vertebral column, an encephalocele, and a spina bifida. Resorption during this latter period was within normal limits. Adrenal glands of all treated mothers showed necropsy, and those of the fetuses had histopathological changes. When varying doses of the material were administered at day 8 (0.1 to 2.5 mg/100 g maternal body weight), resorption rates increased with dose level and doses of 1.0 mg/100 g or above produced teratogenic effects. At day 13, administration of the substance at increasing dose levels up to 0.5 mg did not affect the resorption rates or teratogenic effects; however, at doses of 1.0 mg and greater, all surviving fetuses had malformations. Comparative studies showed that DMBA had less severe effects than did the 12-hydroxymethyl derivative. Embryopathic activity of these materials appears to correlate with adrenocorticolytic activity. Two active side chains at C-7 and C-12, with an intact methyl group at C-12, are necessary for activity. (21 refs.) - *M. S. Fish.*

University of Aberdeen
Aberdeen, Scotland

508 **DOBBIN, JOHN; & SANDS, JEAN.** Timing of neuroblast multiplication in developing human brain. *Nature*, 226(5246):639-640, 1970. (Letter)

The 15- to 20-week period after gestation is a time of rapid growth of fetal brain cells as measured by DNA content, and undernutrition during this vulnerable period may produce permanent deficits. Estimation of DNA values in the forebrain, cerebellum, and brain stem of 24 apparently normal embryos resulting from therapeutic abortions and of 52 cases of stillbirths and perinatal deaths where birth weight and gross cerebral and other pathology appeared normal showed 2 distinct phases of cell division. The period of the greatest DNA increase corresponds to that of neuroblast proliferation and occurs from 15-20 weeks after gestation. The period of glial division (25 weeks to about 2 years postnatal) is one of a much less marked DNA increase. Studies of freshly-killed rat brain established that the quantity of DNA was unaffected by the delay between death and the collection of the human material. The glial cell deficit caused by growth restriction during this second period can lead to impairment; however, the possibility that undernutrition during the newly-discovered first period of rapid growth also leads to impairment is under investigation. (9 refs.) - *M. S. Fish.*

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509 **PINKUS, GERALDINE S.; & PINKUS, JACK L.** Fluorometric determination of total estrogens in amniotic fluid of normal and complicated pregnancies. *Obstetrics and Gynecology*, 36(4):528-535, 1970.

Total estrogen concentration of amniotic fluid (both free and conjugated forms are precipitated by ammonium sulfate) increases during the course of a normal pregnancy and may be used to monitor fetal welfare. Determinations in 9 normal and 12 complicated pregnancies showed consistently low values in the latter group, but there was some overlap with the normal range. This simple technique was more accurate than spectral analysis in predicting fetal survival in some cases and might be used to complement this examination. (26 refs.) - *E. L. Rowan.*

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Boston, Massachusetts 02118

DEVELOPMENTAL ASPECTS – Physical

510 **CHASEY, WILLIAM C.; & WYRICK, WANEEN.** Effect of a gross motor developmental program on form perception skills of educable mentally retarded children. *Research Quarterly*, 41(3):345-352, 1970.

A developmental program of gross physical activity apparently does not affect an EMR child's ability to perceive and copy geometric forms. Administration of the Winter Haven Perceptual Forms Test (PFT) to 20 EMRs (CAs 73-146 mos; IQs 50-85) before and after taking part in a 15-week physical-development program and to 12 controls (to control for the Hawthorne effect) showed no improvement in performance because of gross-motor training. Analysis of variance of repeated measures did show improvements for both groups in neatness, organization, and triangle copying. The evidence is clear that motor-performance ability is task-specific, both between and within individuals. (17 refs.) - *B. Berman.*

University of Texas
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511 **RICHARDS, JOHN T.** Internal consistency of the WPPSI with the mentally retarded. *American Journal of Mental Deficiency*, 74(4):581-582, 1970.

Individual administrations of the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) to 40 retarded preschool children revealed that the test had adequate split-half reliability for this population. Utilizing similar estimation techniques as used in standardizing the original WPPSI, the investigator administered the subtest Animal House after the first testing was completed. Odd items were compared with even items except for the Animal House subtest where test-retest data were used. Split-half reliability coefficients ranged from .80 for the information subtest to .97 for the Mazes; full-scale coefficient was .88. Estimates of internal consistency compared favorably with those reported by Wechsler. (4 refs.) - *B. Berman.*

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512 **CHASEY, WILLIAM C.** The effect of motor development on school readiness skills of educable retarded children. *American Corrective Therapy Journal*, 24(6):180-183, 1970.

A 15-week concentrated physical development program administered to 18 EMRs showed no effect on their school readiness. Five items of the Anton Brenner Developmental Gestalt Test of School Readiness, selected as pre- and post-measures of school readiness, were given to the Ss (age range, 73-146 months; Stanford-Binet IQ, 50-85) and to 18 EMR controls who were not given the physical-education program. The control group did better on all the pre-test components and on 3 of the post-test components. Variability of test components and total score remained fairly stable for the controls; Ss showed increased variability. There is much evidence that motor-performance ability is task specific, so that gross motor activities contribute little to the individual BGT items. (19 refs.) - *B. Berman.*

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513 **NELSON, K. B.; & DEUTSCHBERGER, J.** Head size at one year as a predictor of four-year IQ. *Developmental Medicine and Child Neurology*, 12(4):487-495, 1970.

A total of 9,379 children in the Collaborative Project on Cerebral Palsy was evaluated in terms of head circumference and body length at 1 year of age and compared with their 4-year IQ as measured by the Stanford-Binet Intelligence Test. Greater head circumference, greater length, white race, female sex, and more maternal education were all positively related to intelligence at age 4. At the extremes in head size, the smallest 0.67% of the population had a 50% probability of IQ less than 80 at 4 years, and none of this group had IQ scores above 120. The 1% with the largest heads at 1 year had a higher average IQ than children with head sizes at the mean; this group also had a greater proportion of IQs over 120. Head size greater than 2 standard deviations above the mean may indicate pathology and IQ scores were lower in this group. (18 refs.) - *E. L. Rowan.*

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DEVELOPMENTAL ASPECTS – Mental

514 **BORTNER, MORTON; & BIRCH, HERBERT G.** Patterns of intellectual ability in emotionally disturbed and brain-damaged children. *Journal of Special Education*, 3(4):351-369, 1969.

Large samples of children identified as emotionally disturbed and brain-damaged were investigated through a comparative study of intelligence test performance to provide detailed information about their school skills and intellectual capacities. The Ss were 247 children, aged 7 to 11 years, of whom 131 were designated as emotionally disturbed and 116 as brain-damaged. The groups were separately enrolled in different schools and came from backgrounds of similar socio-economic categories. Enrollment criteria in the schools were a minimum IQ of 50, with no upper limits. All subtests of the Wechsler Intelligence Scale for Children, except the mazes, were administered and analyzed for significant patterns of abilities in the 2 groups. The results indicated dull-normal to average intellectual functioning at every age level, statistically insignificant verbal-performance score discrepancies, and excessive subnormal intellectual functioning in the brain-damaged group. In general, the analysis of intellectual patterning indicated that, aside from differences in IQ level and certain aspects of the factorial composition of intellect (such as the verbal, performance, attention, distractibility, and memory factors), the intellectual organization of the 2 groups was markedly similar. This basic similarity cast doubt upon the validity of medical designations, such as brain-damaged and emotionally disturbed, as valid criteria for educational separation, instructional strategy, or curriculum design. Further study of the educational bases of class assignment is needed. (42 refs.) - *S. Glinsky.*

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515 **HILL, SUZANNE D.; & BARNETT, LESTER W., JR.** A comparison of visual and tactual discrimination learning of retarded and schizophrenic children. *Journal of Special Education*, 3(4):417-424, 1969.

Schizophrenic children make more efficient use of tactual cues in learning and obtaining information from the environment than do MRs, who rely more on visual information. Nineteen schizophrenic children and 17 EMRs completed the

object discrimination problem, and 19 schizophrenics and 14 EMRs finished the oddity problem. The testing apparatus was a modification of the Wisconsin General Test Apparatus, and all children received both problems twice, once with visual and once with tactual stimuli. Data revealed that EMRs made predominant use of position cues, while schizophrenics emphasized them only when tactual stimuli were presented first. The results showed that a developmental lag exists in receptor usage in childhood schizophrenia, although the schizophrenic group demonstrated more efficiency than the MRs, both in utilization of cue information and type of response developed. The schizophrenics also showed greater transfer from tactual than from visual experience. These facts suggest that teachers should determine each schizophrenic child's level of tactual or other near-receptor senses, provide cues by means of these senses, and gradually substitute visual cues. (19 refs.) - *S. Glinsky.*

Delta Regional Primate Research Center
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516 SALVIA, JOHN; & SHUGERTS, JAMES. Color-related behavior of mentally retarded children with color blindness and normal color vision. *Exceptional Children*, 37(1):37-38, 1970.

Comparison of performance (matching colors in the Dvorine Pseudo-Isochrometic Plates) of color-blind retarded children with that of retardates with normal color vision showed no signficant differences on the color matching tasks or in the number of correct word-color associations which appear independent of color perception. The color matching tasks (5 single-colored and 5 multiple-colored) were applied to 20 children (mean CA, 11 yrs; mean MA, 5.8 yrs). Results indicate that teachers of a low-educable group have no need to manipulate teaching materials with color differences in mind. (4 refs.) - *B. Berman.*

University of Illinois
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517 SABATINO, DAVID A.; & HAYDEN, DAVID L. Information processing behaviors related to learning disabilities and educable mental retardation. *Exceptional Children*, 37(1):21-29, 1970.

Audiometric and visual screening tests administered to 472 academically failing elementary school children with no recorded medical or social/personal problems revealed mild EMR in 287 and learning disabilities (LD) in the remainder of the Ss who were of average or above normal intelligence. Both EMR and LD children revealed perceptual and expressive-receptive language problems, but EMRs lacked symbolic conceptual ability to mediate language concepts while LD children displayed compensatory linguistic talent that increased with age. In some academic areas, EMRs apparently reached predicted grade equivalents. Factor analysis demonstrated many similar perceptual and language disabilities in the 2 groups but definite behavioral differences. Standard tests are not adequate for distinguishing these groups; what is needed is knowledge of the information-processing behaviors associated with a given child's learning characteristics, plus supplemental instruction. (13 refs.) - *B. Berman.*

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University Park, Pennsylvania 16802

518 CLARKE, A. M.; CLARKE, A. D. B.; & COOPER, G. M. The development of a set to perceive categorical relations. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation*. New York, New York, Appleton-Century-Croft, 1970, p. 433-447.

Small, relatively short-term experiments with moderately and severely retarded children and adults as well as preschool normals have shown that, with appropriate training, Ss will discriminate different events into categorized equivalents, thereby improving transfer to similar tasks; complexity of training task was relevant to the amount of transfer—transfer material consisted of 5 stimulus cards, each giving a pictorial example of a common concept, such as animals, clothes, or humans. Comparison of performances of MRs, normal children, and undergraduates on memory for the same word list showed that only normal children and students measured above chance on occurrence of association of conceptually related words. Examinations of the effects of several training

methods, which used different kinds of word lists, on ability to recall a new word list, showed that arranging words as categories was superior to randomization, verbal instruction, or unrelated word treatment. It appears that teaching rules to retarded children is more profitable than teaching elements. Faced with a demanding problem, Ss discriminate among stimuli to reduce complexity, categorize in order to learn, and thus develop a rule-forming capacity that enhances transfer. (16 refs.) - *B. Berman.*

519 **UZGIRIS, INA C.** Sociocultural factors in cognitive development. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 7-58.

Although the general importance of the sociocultural milieu to cognitive development is recognized, its true role, particularly in specific individual functioning, remains undefined. The sociocultural role is approached in 3 ways: as an irreducible minimal substructure for normal development, as an influence on the rate, but not the direction, of development (biology affects direction), and as affecting developmental rate and direction, thus producing cognitive patterns varying with the milieu. Relevant to this concern, is the nature of intellect: if it is unitary environment has no great influence on it; if multidimensional, specific sociocultural events will affect the development of specific intellectual elements. Empirical evidence for the latter is lacking: sociocultural studies have largely dealt with broad, externally oriented parameters (urban-rural residence, socioeconomic status, amount of schooling, etc.). In addition, global measures (such as IQ) have been applied to assessing cognitive growth. MR involves consideration of the structure of intellect and rates of cognitive development as well as the dimensions of environmental events in relation to specific cognitive processes at particular developmental levels. Identification of the psychologically significant features of the sociocultural milieu is necessary for understanding the influence of environment on cognition. It is suggested that cognition would be fostered by a properly stimulating environment that responds to a child's efforts to relate. (195 refs.) - *B. Berman.*

520 **BOVET, MAGALI.** Piaget's theory of cognitive development, sociocultural differences, and mental retardation. In: Haywood, H. Carl, ed. *Social–Cultural Aspects of Mental Retardation.* New York, New York, Appleton–Century-Croft, 1970, p. 59-69.

Cross-cultural Piagetian studies have revealed 2 separate processes in cognitive development–one depending on the course, the other on the rate of development. Piaget regards experience and sociocultural milieu as indispensable to cognitive maturation, in addition to a general factor of equilibration, which regulates the specific environmental factors. The effect of cultural factors on cognition is illustrated by answers to questions (given to Algerian children) concerning the conservation of physical quantitites and of length; the answers revealed also the differences in course and rate of cognitive development. These studies shed light on processes involved in MR, in which, also, the rate and course of development must be distinguished; cross-cultural and learning studies have demonstrated both a slowing-up and an acceleration of rate. Operatory exercises in Geneva (based on learning procedures utilizing results of these studies) with 10 MRs (CAs 7 to 11 yrs; IQs 45-50) during an academic year showed that the Ss gained in logic and spatial relations; 2 Ss with language and motor impairments progressed to an almost normal level. Well-designed exercises, based on knowledge of normal development, can benefit retardates; even deviations in the course of development can be brought to a higher level by optimal learning conditions. (7 refs.) - *B. Berman.*

521 **McCANDLESS, BOYD R.** Modeling and power in cognitive development. In: Haywood, H. Carl, *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 70-80.

Cognitive development (like social development) is influenced by such genetic and constitutional factors as activity level, endocrinological balance, body build, strength, reaction speed, and motor coordination, all of which interact in infinite ways with learning opportunities. From a social-learning focus, several variables interact with a child's

genetic and constitutional predisposition in cognitive development. First, there is the role of power as it influences modeling and identification with environmental elements. Power—the possession of something valued or feared—in this modeling sense involves physical, sexual, omniscient, prestige, and comfort-giving aspects. The child learns about and uses power through communication, prediction, ratio of positive and negative reinforcers, psychological control, and perceived similarity between himself and the power dispenser. There is also the question of regularity of developmental stages: while the environment may slow down or speed up a child's development, he must, however, go through the same stages as others do. Finally, the child must cope with discontinuities in his development that produce rate and quality changes in cognitive growth. (30 refs.) - *B. Berman.*

522 **ZIGLER, EDWARD.** The nature-nurture issue reconsidered. In: Haywood, H. Carl, ed., *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 81-106.

Emitted behavior reflects both genetic and environmental factors and shows at least the 2 organismic systems of cognition and of motivation and emotion. The simple maturational view of intellectual development is no longer tenable; the cognitive developmental approach, not the psychometric, holds the greatest potential for understanding the developing intellect. The environmental influence on intellect will be understood only when we demonstrate a 1 to 1 relation between specific environmental input and cognitive processes. Genetic inheritance is a vital aspect of intellectual variability; unbridled environmentalists must be opposed. Standard IQ tests are useful chiefly as indicators of cognitive functioning; however, to the extent they reflect social adjustment, IQ improvement has value. Nevertheless, the view that quality of cognition (in a standard environment) is very difficult to improve is consistent with results of children's performance on Piaget-like tasks. A variety of environmental techniques gives no great improvement in MR intellectual capacity. Despite this, "socialization" (use of a variety of non-intellective factors) helps retardates operate more effectively. (100 refs.) - *B. Berman.*

523 **OLSON, DAVID R.** Language acquisition and cognitive development. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 113-202.

Language appears essential for some aspects of cognition, but thought is not always essential to language. Language and cognition show a structure (not the same one); psychologists and linguists must look behind task performance and estimate the structure (or competence) that particularizes a child's behavior. Progress in this has been made in language (such as, syntactic rules) and in the phonological system (Jacobsen's distinguishing features). Much less specific is the semantic system, for which the cognitive system (schemata and their differentiation and organization) forms a substrate. With age, a child's language and concepts alter towards adult models, since he needs a schema to give him some behavioral regularity. Although language helps to consolidate perceptual schemata and instruct a child, it is not a necessary condition for the origins of "relations" or "operations." Language has unique effects on memory and may be even more important for relating different conceptual systems. (285 refs.) - *B. Berman.*

524 **ROSENBERG, SHELDON.** Problems of language development in the retarded. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 203-216.

Measurement of language ability and training in retardates must be strongly based on theory, methodology, and research findings in linguistics, psycholinguistics, and cognitive psychology. Research in language of the retarded has shown that IQ does not predict developmental stage, there is considerable association between language onset and motor development, and language development in Ss with Down's syndrome (although definitely slowed) is similar to that in normals. Indeed, language development is more closely controlled by maturation than by intellectual ability. One study with normals (CAs 2 to 6 yrs) and educable specials (CAs 6 to 7 years; IQs 61.1 to 66.5) has shown that in both groups

imitation is more advanced than comprehension and the latter more advanced than production. Language development in the retarded is slowed down rather than qualitatively different from that in normals. Measuring language maturity in retardates must be based on proper delineation of adult language structure, show knowledge of normal language development, differentiate between underlying linguistic competence and observable performance, and be scored to reflect maturational differences. Language training for retardates must assess the individual child's disabilities, recognize environmental variables, understand that experience is related more to transformational and semantic development, reflect child-adult interactions, recognize biological components, and seek the child's active participation. (37 refs.) - *B. Berman.*

525 **IRWIN, ORVIS C.** Cognitive trends in mentally retarded children. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 217-245.

Observation and testing of over 5000 children with a speech and language handicap and about 1000 normals have shown that attainment of cognitive status by MR children depends on variations, directions, and trends in cognitive achievement. Cognitive ability is reflected in expression and comprehension of words and in ability to discriminate speech sounds—the latter is a fundamental cognition—and both are related. Five experiments were designed to show how children with MR and cerebral palsy (the number varying from 540 to 745; 52% with IQ < 75) achieve a degree of cognition with age when standardized tests designed for children with speech handicaps are utilized. Analyses of results which embraced 5 cognitive functions showed that vocabulary of comprehension and vocabulary of expression in MRs may be curvilinear with chronological age (CA) and are linear with mental age (MA), abstraction proceeds according to CA in a curvilinear manner, sound discrimination shows a curve according to CA, and immediate memory span is curvilinear according to CA, and non-linear to MA. Percentile grids, constructed from test scores, have been useful in providing profiles which permit checking cognitive status for each child. The battery of 5 cognition tests selected as appropriate for retardates is useful in revealing cognitive potential or relation between competence and performance. It is relevant also to define the roles of these terms as well as of deep structure and surface structure in human intellectual, cognitive, and perceptual processes. (36 refs.) - *B. Berman.*

526 **STAATS, ARTHUR W.** Intelligence, biology, or learning? Competing conceptions with social consequences. In: Haywood, H. Carl, ed., *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 246-277.

Revolutionary changes are needed in our concept of man's biological make-up, particularly the idea that intellectual ability derives from biological structure. Conceptions like these actually constitute social theories and affect social actions. From such thinking comes the notion that language development is a function of biology (an obstacle to a more productive learning conception of human behavior and to solutions of social problems); whereas, in fact, both language development and intelligence are largely overlapping behavioral skills. Faulty extrapolations from Darwinian theory and biological analysis have contributed to the misconception of intelligence as a biological derivative. Biological structure provides the mechanism by which the individual learns the complex responses (socially derived) to complex environmental stimulus configurations. What the child learns depends upon the kinds of learning conditions and behavior repertoires furnished by the biological structure's milieu. Thus, one has the means for understanding and ameliorating problems of intellectual growth and for attending to the social problems of our depressed minorities. (10 refs.) - *B. Berman.*

527 **DAS, J. P.; JACHUCK, KASTURI; & PANDA, T. P.** Cultural deprivation and cognitive growth. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 587-604.

The subculture to which a child belongs at birth is the major determinant of his competence. A study

of intelligence and cognitive functions in school children in India (matched for age and school grade) from low and high castes, poor and moderate-means families, revealed inferior performance by the low-caste children. Cultural and psychological differences still attach to India's 4 castes: Brahmin (priests and teachers), Ruler and Warrior, Businessman, Servant. The latter, now called Harijan, was formerly called Untouchable. Raven's Progressive Matrices, an intelligence test with a high g-factor loading and minimally sensitive to socioeconomic status, administered to samples of the 4 castes drawn from rich and poor and supplemented by the Stroop Test (to obtain an index of linguistic development), showed lowest scores for the Harijan group in cross-modal coding (which appears relevant to general intellectual ability) and in short-term memory (used by some researchers to separate MRs from normals). Mean Progressive Matrices scores were 21.22 for rich Brahmins, 19.30 for poor Brahmins, 19.38 for rich Harijans, and 17.32 for poor Harijans. On the Stroop Test, Brahmins excelled Harijans, regardless of economic status. Harijan test scores reflected mild retardation (within the limits of normal intelligence), which, in the context of caste and cultural deprivation, causes enormous problems. (23 refs.) - *B. Berman.*

528 **WYRICK, WANEEN; & OWEN, GUY.** Effects of practice on simple reaction time of trainable mental retardates. *American Corrective Therapy Journal*, 24(6):176-179, 1970.

Determination of reaction time (RT) of 19 male institutionalized TMRs to a sound stimulus corroborated previous findings that MRs' RT performances are more variable than normals and considerably slower. A sound stimulus, with a foreperiod randomly varied from 1-3 seconds, was administered to the Ss (IQs ranged from 20-66), who responded (in a semi-dark room) on a key placed on a board mounted on a microswitch. Two sets of trials, one week apart, were administered. There were considerable decreases in means as well as group variance between trials. Although learning among Ss was variable, it manifested a slow but steady improvement in RT. (12 refs.) - *B. Berman.*

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529 **GRASSI, JOSEPH R.** Auditory vigilance performance in brain damaged, behavior disordered, and normal children. *Journal of Learning Disabilities*, 3(6):302-305, 1970.

Vigilance tasks (20-minute tape recordings of randomized digits, requiring response to infrequent signals over a period of time) administered to 75 Ss (25 brain-damaged, 25 behavior-disordered, and 25 normals) demonstrated that work tasks for brain-damaged and behavior-disordered children should be as short as possible. Normal Ss detected more signals than did either of the other groups, and the brain-damaged Ss missed more, regressing to a level almost 50% below maximum and showing severely impaired vigilance efficiency. As the task increased in time, fewer signals were detected, with normals showing the highest vigilance. Performance of behavior-disordered and brain-damaged Ss was extraverted. Normal Ss missed fewer signals because they accumulated less reactive inhibition. The brain-damaged Ss were most affected by inhibitory phenomena; normals were least affected. (15 refs.) - *B. Berman.*

University of Miami
Miami, Florida 33124

530 **LEVITSKY, DAVID A.; & BARNES, RICHARD H.** Effect of early malnutrition on the reaction of adult rats to aversive stimuli. *Nature*, 225(5231):468-469, 1970. (Letter)

Malnutrition (restriction of dietary protein) during early development in rats produced (in addition to smaller size) significant behavioral differences during stressful situations from that of controls with adequate protein intake. The difference (a rather long-lasting, if not permanent, lowering of the stress-response threshold) was manifested in the experimental rats' more intense passive-avoidance behavior and greater emotional stress and locomotor activity in response to all aversive stimuli. Adrenal enlargement resulting from malnutrition may be causal in the greater response intensity. It is not yet clear if learning deficiency is also a result of early malnutrition. (12 refs.) - *B. Berman.*

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531 **KELLAS, GEORGE; & BUTTERFIELD, EARL C.** Response familiarization and the paired-associate performance of noninstitutionalized retarded and normal children. *American Journal of Mental Deficiency*, 75(1):81-87, 1970.

A basic, paired-associate (PA) learning task (5 pairs of items, with nonsense syllables as stimulus terms and 2-letter words as response terms) administered to 46 retardates from special-education classes (mean IQ 70.86) and 46 normals showed that familiarization with response terms facilitated retardate performance. Comparison of the 2 groups was preceded by relevant, irrelevant, or no pretraining for all individuals. Relevant training for retardates proved superior to irrelevant training for the first 2 PA trials; for normals, only the main effect of trials was significant. Relevant pretraining virtually eliminated differences between the groups; however, with no or irrelevant pretraining normals were superior. Relevant response training—independent of nonspecific elements—benefitted retardates only. Equating of meaningfulness in response terms made it unlikely that intelligence affected differences in response meaningfulness. (9 refs.) - *B. Berman.*

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Lawrence, Kansas 66064

532 **ELLIS, NORMAN R.; McCARVER, RONALD B.; & ASHURST, HUGH M., JR.** Short-term memory in the retarded: Ability level and stimulus meaningfulness. *American Journal of Mental Deficiency*, 75(1):72-80, 1970.

Test materials [2 sets of 7 highly-meaningful colored picture cards of common objects (key, drum, kitten, etc.) and a similar black-and-white set of "nonsense" shapes] administered to compare performance of 36 institutionalized MRs (divided into 3 IQ groups) showed intelligence closely associated with "primary" performance. Primary, secondary, and tertiary memory processes were assumed: the first 2 determine short-term memory; the last, long-term memory. Primary information—limited and transient—is rapidly forgotten, unless transferred (by rehearsal strategies) to secondary memory. More intelligent Ss stored more information in secondary memory, presumably because of rehearsal techniques and superior linguistic abilities. Recency performance was related minimally, if at all, to intelligence. Negligible effects of meaningfulness on primacy performance indicated higher-IQ Ss used verbal labels no more effectively than did lower-IQ Ss. (12 refs.) - *B. Berman.*

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533 **STINNETT, RAY D.; & PREHM, HERBERT J.** Retention in retarded and nonretarded children as a function of learning method. *American Journal of Mental Deficiency*, 75(1):39-46, 1970.

Two versions of Gillette's Method of Adjusted Learning (MAL) and the Equal Amount Learned Method (EAL) administered to 60 EMRs and 60 normals (IQ, 91-110) indicated that normals' learning performance was superior to that of the retardates, even with MA differences ruled out. In each sample, 20 Ss (selected to learn a paired-associate task) were randomly assigned to either EAL, Modified Method of Adjusted Learning, or MAL learning conditions. EAL groups needed significantly more trials to reach the criterion of original learning than did the other group. Analysis of relearning data revealed that the EMRs exhibited a 24-hour retention deficit; the highest degree of association strength developed in the EAL method; retention varies as a function of learning method and subject classification; and learning method affects comparisons of rote learning and retention in retardates and normals. (8 refs.) - *B. Berman.*

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Eugene, Oregon 97403

534 **GALLAGHER, JOSEPH W.; & REID, DONALD R.** Effect of five free association strength values on paired-associate learning. *American Journal of Mental Deficiency*, 75(1):33-38, 1970.

To test the effect of free-association strength (FAS)—a general index to describe the associative linkage between words—on the learning of word pairs, 5 lists of 8 word-pairs each were administered to 75 institutionalized MRs, 75 normal third-graders, and 75 normal first-graders. All lists

were homogeneous, thus allowing evaluation at various levels of weakly associated and non-associated pairs. Results indicated that as FAS increases, the mean number of errors declines, and paired-associate learning in normals and MRs is directly related to FAS values. All the associated pairs were learned with fewer errors than the non-associated pairs. On highly associated pairs, MRs performed in a similar manner to the third-graders, but on weakly associated pairs, MRs were more like the first-graders. MRs apparently have less trouble with homogeneous than with heterogeneous materials. (6 refs.) - *B. Berman.*

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535 **GALLAGHER, JOSEPH W.** Effect of meaningfulness on learning syntactic units. *American Journal of Mental Deficiency*, 75(1):27-32, 1970.

Administration of 2 lists of 9 word pairs (one meaningful and syntactically correct, the other non-meaningful but syntactically consistent) to 36 institutionalized MRs (mean IQ 61.4; mean age 173 mos) and 36 normal controls (mean IQ 100.7; mean age 101 mos) to test the influence of meaningfulness (semantic consistency) or its lack (anomaly) on learning syntactic word pairs disclosed that both groups learned meaningful pairs with fewer errors and their performance was very similar, and that retardates learned non-meaningful pairs with more errors than did normals. Both groups learned meaningful pairs faster than they learned non-meaningful pairs. Results suggest both groups have some performance commonality in mastering meaningful syntactic word pairs. Responses to 3 phrase types (noun-verb, adjective-noun, verb-noun) showed that the noun-verb was the easiest to learn and verb-noun was the hardest to learn when the phrases were meaningful; there was no difference in learning difficulty with non-meaningful phrases. In learning phrases, apparently, one must consider both the effect of words as a unit and their stimulus-response qualities. (10 refs.) - *B. Berman.*

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536 **McMANIS, DONALD L.** Conservation, seriation, and transitivity performance by retarded and average individuals. *American Journal of Mental Deficiency*, 74(6):784-791, 1970.

Comparison of conservation, seriation, and transitivity performance by 80 retardates (IQ 46-72; CA 22-24 yrs) and 80 normals (IQ 85-116; CA 6 yrs-11 yrs, 9 mos) matched for mental age (MA) suggested that seriation links conservation and transitivity, and its deficiency in MRs is connected with an already described transitivity deficiency. The tests consisted of sticks of varying length requiring judgments by all Ss. Results indicated a hierarchical relation among the conservation, seriation, and transitivity operations. Conservation without seriation occurred in significant degree among Ss displaying discrepant performance in these 2 items, and seriation without transitivity showed a similar incidence among those with discrepant performance in the latter 2 items. Conservation is a necessary, but not sufficient, prerequisite for seriation, which develops before transitive thinking ability; however, seriation capability does not assure ability in transitivity. (8 refs.) - *B. Berman.*

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537 **STERNLICHT, M.; BIALER, I.; & DEUTSCH, M. R.** Influence of external incentives on motor performance of institutionalized retardates. *Journal of Mental Deficiency Research*, 14(2):149-154, 1970.

Performance of a simple manipulative task, the Placing subtest of the Minnesota Rate of Manipulation Test (MRMT) by 180 (90 male, 90 female; CA 12-20 yrs.; IQ 50-69) institutionalized retardates under various interpolated conditions disclosed that censure was the strongest motivating variable. Two successive trials were given under conditions of no incentive, praise, censure, aspiration, praise-aspiration, and censure-aspiration. Measure of performance was the time taken to complete each trial. Censure acted to enhance an already existing performance increment as did Aspiration; however, both conditions in combination did not show a simple additive action but produced a new configuration. Apparently, the

"whole" of a situation determined how performance was affected. The differential value of positive or negative verbal incentives and failure as motivation with MRs needs further research. (13 refs.) - *B. Berman.*

Willowbrook State School
Staten Island, New York 10314

538 **ROSS, DOROTHEA.** Incidental learning of number concepts in small group games. *American Journal of Mental Deficiency*, 74(6):718-725, 1970.

Participation by 20 EMR children in a 9-month training program in playing small-group games requiring number manipulation yielded more improvement in knowledge of general game skills and basic number concepts than acquired by 20 controls who spent equal time in the customary special-class setting learning basic number concepts. All participants (age range 53-119 mos; IQ 51-79) were free of gross motor, sensory, or emotional disabilities. The number-knowledge test measured such items as rote and rational counting, number concepts from 1 to 5, and identifications of time, color, and shape. Games (for which various behavior categories were evaluated) included searching, cards, guessing, and active racing. Game efficiency was enhanced by the systematic use of excitement, modeling procedures, and rewards. Experimental Ss obtained higher scores on all measures, and gave evidence that they were beginning to develop quantitative thinking ability. Results indicate that an EMR child's performance in part reflects not a slower intellectual developmental rate but the social-play deprivation he normally experiences. (28 refs.) - *B. Berman.*

Stanford University School of Medicine
Stanford, California 94305

539 **BORTNER, MORTON; & BIRCH, HERBERT G.** Cognitive capacity and cognitive competence. *American Journal of Mental Deficiency*, 74(6):735-744, 1970.

Habilitation and education of retarded children require making a distinction between cognitive capacity and performance. Analysis of the relationship between these 2 elements in both mentally normal and subnormal children reveals that performance under specific conditions is only a partial indicator of ability. Environmental stimuli compete for an individual's attention and his preponderant set determines how he responds. Thus, his performance does not necessarily reflect his total capacity, but only that fragment in accord with the special conditions of the immediate task. Motivation influences activity level, and learning-achievement differences reflect different degrees of "goodness of fit" between the individual and his environment. Various portions of capacity—as expressed in performance—reflect, for example, age-specific, motive-specific, and task-specific sets. Any individual performance (embodying concepts, skills, and learning levels) indicates an interaction between the individual's potentialities and the special requirements of a task. (79 refs.) - *B. Berman.*

Yeshiva University
New York, New York 10003

540 **BILSKY, LINDA; & EVANS, ROSS A.** Use of associative clustering technique in the study of reading disability: Effects of list organization. *American Journal of Mental Deficiency*, 74(6):771-776, 1970.

Stimulus materials (20 words from 4 categories—food, clothing, animals, and body parts—presented auditorily in 4 different orders) to each of 32 MRs (ages 12-19 years, IQs 45-70) indicated that Ss with relatively high reading-comprehension scores clustered significantly more words than those with relatively low scores. Words were presented randomly to one group and to another group in categories on the first 2 trials and randomly on the last 2 trials. Each group was divided into above- and below-median units by the Metropolitan Achievement Test. The correlation was higher when clustering was spontaneous than it was when clustered lists were presented. The MR's difficulty in reading and in other classroom activities may be due to an inability to organize verbal materials—an inability that appears to be somewhat remediable. An MR's performance in such areas as reading comprehension may be improved by remediating specific input-organization deficiencies. (10 refs.) - *B. Berman.*

Teachers College, Columbia University
New York, New York 10027

541 **EVANS, ROSS A.** Use of associative clustering technique in the study of reading disability: Effects of presentation mode. *American Journal of Mental Deficiency*, 74(6):765-770, 1970.

Four lists of 20 randomized words from 4 conceptual categories (animals, clothing, food, and body parts), presented to 24 male and 36 female MR adolescents (IQs 51-75), revealed that reading level was not significantly correlated with recall or associated clustering but that bimodal presentation (auditory-visual) definitely enhanced recall but not clustering. Each S was taken in individual experimental sessions and randomly assigned to one of 3 modes of stimulus-presentation (auditory, visual, and auditory-visual). The number of correct words recalled and the number of words clustered above chance were the primary dependent variables. There were no significant differences between auditory and visual conditions. Results indicated that associative-clustering performance was not a function of general reading ability. (9 refs.) - *B. Berman.*

Teachers College, Columbia University
New York, New York 10027

542 **MacMILLAN, DONALD L.** Comparison of nonretarded and EMR children's use of input organization. *American Journal of Mental Deficiency*, 74(6):762-764, 1970.

Sixty normal children did better than 60 EMRs on recall of a series of digit spans (varying in length from 3 to 9) presented in grouped and ungrouped sequences. Digits were on cards and were scored on the longest series recalled perfectly. Results did not support a previous finding, in which, when grouped and ungrouped scores were combined, there was a difference for retardates in favor of grouping; in this study, normals, under ungrouped conditions, recalled significantly more digits than did the EMRs under grouped conditions. (3 refs.) - *B. Berman.*

University of California
Riverside, California 92502

543 **PENNEY, RONALD K.; & WILLOWS, DALE M.** Mediational deficiency of mentally retarded children: III. Effect of length of institutionalization. *American Journal of Mental Deficiency*, 74(6):780-783, 1970.

Comparison of 2 groups of MRs on a mediation task showed that the longer the time of institutionalization, the higher the mediation score. The task (a 3-stage paired-associate performance—AB, BC-DC, AC) was given to 18 cultural-familial retardates of 5 months to 2 years institutionalization (mean IQ, 63.78) and 18 with 3 to 10 years institutionalization (mean IQ, 61.67). Pictures of common objects, randomly paired and made into slides, were presented as stimuli and responses by the anticipation method on a projector. Schooling and ward instruction in an institution apparently teach retarded children to attend to learning elements—the longer the stay, the greater the transfer to new situations. (6 refs.) - *B. Berman.*

University of Waterloo
Waterloo, Ontario, Canada

544 **OATLEY, KEITH.** Brain mechanisms and motivation. *Nature*, 225(5235):797-801, 1970.

Studies of hunger, thirst, and sex in animals have demonstrated that specific patterns of behavior are generated by mechanisms in the brain. Electrical and chemical stimulation of certain areas of the brain, eliciting response (such as aggressive behavior, eating, drinking, nest building, and sexual behavior), has helped to define these mechanisms and has shown that they have features which model the workings of the environment. In mating, the mechanism directs the animal to a suitable partner in the right season; in eating, it enables the animal to choose the proper food and to avoid a toxic or non-nutritious one. A comparison of a computer simulation with actual drinking responses of a rat suggests that 2 mechanisms govern drinking: a homeostatic one which is dependent on the level of body fluids and a non-homeostatic mechanism which relates to the external environment and causes the animal to drink more at night. (31 refs.) - *M. S. Fish.*

University of Sussex
Brighton, England

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DEVELOPMENTAL ASPECTS – Social and Emotional

545 **NITZBERG, JEROME.** Rebellion can be a good thing. *Journal for Special Educators of the Mentally Retarded,* 6(3):146-150, 1970.

The rebellion of an MR sheltered workshop trainee, who is moving toward independent behavior against a pacific family situation, can lead to serious tensions and destruction of the parent-staff relationship. Many parents of MRs prize a tranquil relation with their MR child based on his total dependence and lack of self-assertion. The task of the staff in a sheltered workshop is to bring the MR along the path of self-reliance to mature, independent behavior. Since this behavior disrupts the peaceful family situation, the resulting conflicts between staff and parents must be handled with great patience and compassion. The parents must be led to realize that the MR's rebellion is a necessary step toward maturity, and that their attitudes will ultimately decide the issue for the child. (No refs.) - *S. Glinsky.*

AHRC Workshops,
New York, New York

546 **LANG, JEAN-LOUIS; & SMIRNOFF, VICTOR N.** Emotional disturbance in mental retardation: A review of recent research in France. In: Haywood, H. Carl, ed. *Social–Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 672-691.

A structural approach to emotional disturbance in MR imposes a particular methodology. Clinical assessment of the emotive disorders must consider the "defective syndrome" (associated with maturational retardation), the "relational syndrome" (expressed through, but not conditioned by, instinctual, emotional, and libidinal developments), and the "functional syndrome" (manifested by structural deviations of function). Attributable to either an organic, psychogenic, or mixed etiology, each syndrome is either primary or secondary to another one. A pathogenic interpretation can be made only after clinical data are evaluated. Emotional disorders, which can be a result of intellectual defect and are an essential component of MR, must be clearly differentiated functionally, especially those affecting language and psychomotricity (delayed maturation, structure, and other elements). Interrelated approaches to the problem are psychologic, organizational, integrative (learning theory), and libido developmental (psychoanalytic concepts). Psychopathology is crucial to going beyond mere clinical and nosological procedures, and psychoanalysis is a primary methodology in understanding MR. (31 refs.) - *B. Berman.*

547 **SMALL, JOYCE G.** Sensory evoked responses of autistic children. In: Churchill, D. W.; Alpern, G. D.; & DeMyer, M. K., eds. *Infantile Autism.* Springfield, Illinois, Charles C. Thomas, 1971, p. 224-242.

Investigations of averaged sensory responses and slow potential shifts (under various experimental conditions) in 8 autistic children, 4 children with other disorders, and 6 normal controls produced significant visual, auditory, and EEG differences in the groups. Best results in applying instrumentation to the experimental Ss were obtained when they were seated in a pediatric dental chair in a familiar environment. Stimulators generated low-intensity light, sound, and somatosensory stimuli in a darkened, sound-controlled room. Electrodes applied to the scalp provided readings preserved on magnetic tape. Autistic children yielded lower-amplitude visual-evoked responses with less obvious early triphasic waveforms, shorter peak latencies, and noticeable variability when 2

different modality stimuli were presented. Auditory evoked responses for autistic Ss showed fewer, less complex peaks. Both autistic and normal Ss showed fairly undifferentiated slow potential shifts, with EEG background frequencies apparently faster in the former group. During motor performance, visual-evoked responses of autistic Ss showed no consistent changes. Except for motor activity, averaging evoked responses, although difficult, appears feasible for evaluating some neurophysiological features in autistic children. (2 refs) - *B. Berman.*

548 **SCHOPLER, ERIC; & REICHLER, ROBERT J.** Psychobiological referents for the treatment of autism. In: Churchill, D. W.; Alpern, G. D.; & DeMyer, M. K., eds. *Infantile Autism.* Springfield, Illinois, Charles C. Thomas, 1971, p. 243-264.

Investigations of preschool autistic children under age 4 have shown that emotional and cognitive disabilities in autism derive from an absence of cortical control and consequent failure to integrate perceptual information. Contrary to former belief, maladaptive parental behaviors are a response to—not a primary cause of—the child's disability. Autistic children also manifested inability to establish meaningful human and social attachments, and impaired competence motivation. Parents of these children were middle class with average social stability and showed confusion about child rearing. The child's receptor system displayed varying degrees of disturbed functioning, usually with less distortion in tactile, kinesthetic, and proprioceptive systems than in those of audition and vision. Based on these new insights into the autistic child-parental relationship, special training programs developed for parental use at home have permitted children to remain at home with consequent beneficial parent-child associations. Treatment structured on an understanding of the child's biological structures (his specific maturation and impairment limitations) is superior to psychogenically oriented therapy and will come closest to attaining his maximum potential. (39 refs.) - *B. Berman.*

549 **WALTER, W. GREY; ALDRIDGE, V. J.; COOPER, RAYMOND; O'GORMAN, GERALD; McCALLUM, CHEYNE; & WINTER, ARTHUR L.** Neurophysiological correlates of apparent defects of sensorimotor integration in autistic children. In: Churchill, D. W.; Alpern, G. D.; & DeMyer, M. K., eds. *Infantile Autism.* Springfield, Illinois, Charles C. Thomas, 1971, p. 265-276.

A sensorimotor study of 30 children (of whom 13 could definitely be considered autistic)—to determine whether children who acted deaf (but were considered emotionally disturbed or autistic by clinicians) displayed any neurophysiological anomalies—revealed an apparently genuine electrical phenomenon, called the Contingent Negative Variation (CNV), arising in the brain. Ss lay in an alcove surrounded by several stimulus generators, a closed-circuit TV, a generator, ear phones, and projection screen. Following habituation to auditory and visual stimuli, Ss received both stimuli in association but without engagement. CNV amplitude and duration appeared directly related to a S's expectancy at or intention regarding each stimulus presentation. In general, the CNV reflected mature, orderly, sensorimotor conditional associations. In normal children, convergence of sensory signals to nonspecific frontal cortex could be demonstrated down to age 1 or 2. In disturbed children, nonspecific responses to visual and auditory stimuli were completely absent in many cases but with some autonomous responses apparent. Most of the disturbed children showed definite autonomous excitement and anxious behavior. Evidence indicates that normal development of the highest associative brain mechanisms depends on continuous coordination of direct and social experience, especially in the years between 3 and 11. (No refs.) - *B. Berman.*

550 **RUTTENBERG, BERTRAM A.** A psychoanalytic understanding of infantile autism and its treatment. In: Churchill, D. W.; Alpern, G. D.; & DeMyer, M. K., eds. *Infantile Autism.* Springfield, Illinois, Charles C. Thomas, 1971, p. 145-184.

Designed to gain understanding of the nature of infantile autism, a survey of 12 years' activity of a day-care unit revealed autistic Ss (selected by Kanner's criteria) who had failed to follow the normal psychoanalytic developmental pattern, with fixation at very immature ego, psychosexual, drive, reaction formation, and defensive levels.

Autism was conceptualized as faulty emotional growth and self-concept development, affecting chiefly non-autonomous ego activities, particularly the development of object relationships. Functioning at very early ego development levels, the autistic child may show normal physical growth but display regression in such basic acts as chewing, swallowing, vocalization, and autoerotic and autoaggressive behaviors at a very primitive sensorimotor level. Psychoanalysis, however, considers autism a syndrome of arrestment and suggests a progression through a series of psychotic stages—along a developmental hierarchy—until some awareness of self towards the environment occurs. Autism etiology ranges from the completely psychogenic, through combinations, to the wholly organic (inherent, congenital, or acquired). Most investigators now regard the autistic process and syndrome as defense and adaptation. Thus, treatment—begun at the child's level with mother substitutes—seeks full object relationship through human contact. (59 refs.) - *B. Berman.*

551 **DeMYER, MARIAN K.; NORTON, JAMES A.; & BARTON, SANDRA.** Social and adaptive behaviors of autistic children as measured in a structured psychiatric interview. In: Churchill, D. W.; Alpern, G. D.; & DeMyer, M. K., eds., *Infantile Autism*. Springfield, Illinois, Charles C. Thomas, 1971, p. 29-70.

Structured psychiatric interviews of 101 children including 28 controls ages 1 to 7 (to determine differences and similarities of autism in respect to normalcy, brain damage, childhood schizophrenia, and MR) affirmed that autistic behavior traits can be codified, reliably rated, and arranged into a profile of scores. Six classes of rating scales, which used test situations borrowed from standardized tests, yielded a mean rater reliability of 85.7 and validity measures of .65 with Alpern infant test, .72 with Vineland Social Maturity Scales, and .82 with a group of items from other standardized tests. To determine if children cluster into diagnostic categories, the data were factor analyzed; the results yielded 9 groups on the basis of behavior traits named without reference to existing clinical diagnoses. Subdivision of the scale items into "normal" and "abnormal" provided "pathology" and "normalcy" scores. A continuum for social-behavior and adaptive task performance ranged over the 9 groups with highest-normalcy and lowest-pathology and highest-pathology and lowest-normalcy at the 2 extremes. Evidence was clear that behavior traits generally attributed to autistic and schizophrenic children correlate with low performance on adaptive tasks. It appears that, in the great bulk of autistic and schizophrenic children, brain dysfunction is the cause of low adaptive performance and high social pathology. (38 refs.) - *B. Berman.*

552 **DAVIS, BETTE JOE.** Differential language behavior patterns and diagnostic evaluation. *Journal of Learning Disabilities*, 3(5):264-275, 1970.

Language evaluation of 24 children (tentatively diagnosed as having autism or childhood schizophrenia) revealed that structured evaluation techniques are diagnostic and provide therapeutic clues for reversing pathologic behavior in children with learning disabilities. The results of clinical observations of the Ss' responses to 9 different stimuli, and non-verbal and verbal tasks to elicit signs of organismic functioning showed that although some behaviors are shared by all Ss (inability to initiate appropriate social contacts, to respond properly to auditory and visual stimuli, or to maneuver the body properly), their response patterns differ sufficiently to place the children in 4 diagnostic groups (6 autistic, 6 schizophrenic, 8 brain-injured, and 4 SMR). The patterns also suggested an organic cause of failure to develop verbal skill: verbally limited Ss presented behaviors apparently related to specific dysfunctions in the learning system. Ss with behavior suggesting severe MR showed a generalized low response level (no response at all to peers, auditory signals, or verbal cues) and inappropriate behavior in motor competency. In responding to structured techniques, they revealed extreme limitations, showing improvement only in concrete form matching. (22 refs.) - *B. Berman.*

3519 North Winthrop
Indianapolis, Indiana 46205

553 **SRIVASTAVA, NIRMALA.** The setting and adjustment problems of children in a school for the retarded – A preliminary

report. *Indian Journal of Mental Retardation*, 3(2):80-86, 1970.

Seventeen institutionalized MR children (CA range 7 to 15 yrs; 12 males; 5 females) were studied to identify situational factors related to adjustment problems and factors related to adjustment. The number of MR children increased with number of siblings in a family but only up to families with 4 children. Higher incidence of MR was not related to greater differences between the ages of parents. Dependable information could not be obtained regarding relationships between parents, home atmosphere, parent-child, and siblings. The most frequent problem was failure to adjust to the school learning situation (17 cases). Emotional disturbance seemed independent of learning difficulties. Temper tantrums were frequent. Emotional disturbance was more related to non-independence in bathing and toileting and lack of cooperation. (5 refs.) - *J. K. Wyatt.*

Lucknow University
Lucknow, India

554 **TEJA, J. S.; SHAH, D. K.,; & VERMA, S. K.** A comparative study of motor and social milestones and their relationship with the intelligence test results in the mentally retardates. *Indian Journal of Mental Retardation*, 3(2):75-79, 1970.

A high correlation was found between delayed motor milestones and impairment of social functioning and profound, severe, and moderate MR. The Seguin Form Board, Porteus Maze tests, Colored Progressive Matrices, and the Draw-A-Man test were administered to 133 MRs who attended a child guidance clinic. Motor milestones were taken from Gesell's developmental schedule. In the mildly MR Ss, there was a negative correlation between impaired motor milestones and measured IQ and social functioning. Proper conceptualization and management of MR children seems to require consideration of measured IQ and motor and social development. (3 refs.) - *J. K. Wyatt.*

University of Virginia School of Medicine
Charlottesville, Virginia 22901

555 **TARNOPOL, LESTER.** Delinquency and minimal brain dysfunction. *Journal of Learning Disabilities*, 3(4):200-207, 1970.

A significant degree of minimal brain dysfunction was found in a minority group, delinquent, school dropout population. One hundred and two male school dropouts (CA 16-23 yrs; 67% Negro, 14% Oriental, 13% Latin, 11% other nonwhites) were administered the Wechsler Adult Intelligence Scale (WAIS), the Bender Visual-Motor Gestalt test, the Oseretsky Test of Motor Proficiency, the Closure Flexibility test and the Gates Reading to Understand Directions test. WAIS Verbal and Performance IQ scores were significantly different (.001 level) for 39% of the Ss. The reading level of 58% was below sixth grade level and 64% scored below sixth grade level on reading to understand directions. Two-thirds of the Ss scored below the normal range on the Bender-Gestalt test. The majority of the visual motor problems was related to visual-motor integration and motor coordination. Ss had a substantial number of untreated medical and dental problems. These findings indicate that successful education rehabilitation programs for the minority-group poor require diagnostic testing and prescriptive teaching which should commence during preschool. (9 refs.) - *J. K. Wyatt.*

City College of San Francisco
San Francisco, California 94112

556 **GRIFFITHS, A. W.; RICHARDS, B. W.; ZAREMBA, J.; ABRAMOWICZ, T.; & STEWART, A.** Psychological and sociological investigation of XYY prisoners. *Nature*, 227(5255):290-292, 1970. (Letter)

A survey of a prison population (divided into 3 groups by height and time of incarceration) that matched Ss having an XYY constitution with a normal-karyotype control from the same group showed some measure of definition in the XYY constitution, which may be accompanied by: a history of mental illness, usually psychopathic, and criminal offenses; lower than average intelligence and lower achievement than brothers and father; covert homosexuality; greater height than brothers or father; and severe alcoholism in father. Ss, in general, were doing less skilled work than the controls. (22 refs.) - *B. Berman.*

HM Prison
Wandsworth, London, England

557 **MILNER, F.** The Bradford syndrome: Case history. *Nursing Mirror*, 131(1):16, 1970.

The Bradford syndrome, a social syndrome occurring in EMR teenage girls and young women, is characterized by wanderlust, promiscuity, and other socially inappropriate behavior. One Bradford syndrome S (CA 26 yrs, IQ 53) has never been able to hold a job and has a history of temper outbursts, promiscuity, and frequent abscondences from home, hospitals, and clinics. Most young women with Bradford syndrome are able-bodied and have a high enough IQ to lead productive lives but are unable to do so because of the "wanderlust" personality disorder. Appropriate treatment for the condition is uncertain but present efforts are directed toward providing small units where patients can be more closely studied and managed by educational and psychotherapeutic methods. (No refs.) - *C. L. Pranitch.*

Westwood Hospital
Bradford, England

558 **PAYNE, PETER D.; & PAYNE, REGINA L.** Behavior manifestations of children with hearing loss. *American Journal of Nursing*, 70(8):1718-1719, 1970.

Behavior characteristics of the child whose hearing loss is sufficient to cause problems, but not severe enough to be detected, include frequent requests for statements to be repeated, strained or bewildered facial expressions, tendency to be withdrawn, lack of desire for social interaction, frequent complaint of earaches, poor voice quality and inflection patterns, more response to movement than to sound, and more rapid response to facial expression than to words. Surveys indicate that the average classroom has at least 1 child with a hearing loss. Behavior resulting from hearing impairment is often mistaken for retardation or behavior disorders. Early detection can minimize the effects of hearing loss through proper medical and educational therapy. (No refs.) - *C. L. Pranitch.*

West Virginia University
Morgantown, West Virginia

559 **TALKINGTON, LARRY W.; & HALL, SYLVIA M.** Matrix language program with mongoloids. *American Journal of Mental Deficiency*, 75(1):88-91, 1970.

Pre- and post-test administrations of a 55-item questionnaire (to determine amounts of appropriate language usage and concept mastery) to 40 Down's syndrome patients—divided into experimental (IQ 24.2) and control (IQ 24.5) groups—demonstrated gains for the experimental Ss (who had been given training) over controls. Twenty-day Matrix-language training gave the experimental Ss superiority in all language and concept areas, including usage and differentiation. Useful and motivating, the Matrix approach appears feasible for training Ss with Down's syndrome in language and concept formation. (14 refs.) - *B. Berman.*

Austin State School
Austin, Texas 78767

560 **ROSEN, MARVIN; KIVITZ, MARVIN S.; CLARK, GERALD R.; & FLOOR, LUCRETIA.** Prediction of post-institutional adjustment of mentally retarded adults. *American Journal of Mental Deficiency*, 74(6):726-734, 1970.

Results of a battery of objective psychological tests (including general intelligence, motor, and achievement tests)—administered to 65 institutionalized Ss (average Binet IQ, 63.8, all with severe educational deficits) just before discharge to the community—suggested that selection of such individuals for discharge might be accurately made from psychometric and institutional work-performance evaluations. All Ss were rated on 4 work-potential and social-adjustment scales. Psychometric scores, behavioral ratings, and certain demographic variables were used as 29 predictors of community functioning. Personal interviews (which included questionnaires and rating scales to assess economic, vocational, and personal/social adjustment and conducted 6 months to 1 year after discharge) provided 22 criterion measures of adjustment. Factor analysis of all data provided the predictor and criterion variables. The largest number of predictive relationships with criteria stemmed from perceptual-motor ability tests and from behavioral ratings of employment potential. Least accurate predictors were verbal-ability and social-adjustment measures. The finding that non-verbal performance is

superior to verbal skill as a predictor of community functioning may give support to using measures of practical, manual, and perceptual-motor abilities in assessing an MR's rehabilitation potential. (27 refs.) - *B. Berman.*

Elwyn Institute
Elwyn, Pennsylvania 19063

561 **MOSELEY, ANN; FAUST, MARGARET; & REARDON, DIANE McGUNIGLE.** Effects of social and nonsocial stimuli on the stereotyped behaviors of retarded children. *American Journal of Mental Deficiency*, 74(6):809-811, 1970.

To explore the nature of stereotyped behavior (repetitive, non-purposive limb and body movements) in institutionalized retardates, 12 such Ss (CA 3 to 10 yrs; IQ 11-69) were subjected to social and nonsocial stimulation; results showed that toys and social stimuli have essentially the same effect on behavior whether the S is in his typical environment or in an unfamiliar setting. The Ss (all with the same physical problem) were tested once under each of 3 different conditions: baseline, toys only, and social. There were no significant correlations between age and IQ and the amount of stereotyping, but there were significant differences in frequency of stereotyped behavior between baseline and the conditions of toys only and social and baseline settings. In general, stimulation effects on Ss followed the reported pattern for adult retardates. (3 refs.) - *B. Berman.*

Pacific State Hospital
Pomona, California 91766

562 **FRANCIS, SARAH H.** Behavior of low-grade institutionalized mongoloids: Changes with age. *American Journal of Mental Deficiency*, 75(1):92-101, 1970.

Observations of 112 low-grade (MA <2 yrs) institutionalized Ss with Down's syndrome showed particular changes at 2 stages: between ages 4 and 13, the changes were in the persistence of initiated behaviors; and after age 30 they were in the reversal or the increasing or decreasing occurrences of patterns observed up to that point. Observations made under relatively unstructured circumstances with a time-sampling method providing reliable behavior records showed diffuse movements, object-oriented behaviors, locomotion, social contact, and self-oriented behaviors. Rocking, self-oriented movements, postures, and diffuse movements (together with behaviors reflecting interest in the external world) increased with age up to 30 years. Behavioral changes with age might parallel normal aging processes, but since they were accompanied by declining interest in externals, it is suggested they resulted not from age but from institutionalization. (12 refs.) - *B. Berman.*

Australian National University
Canberra, Australia

563 **BIALER, IRV.** Emotional disturbance and mental retardation: Etiologic and conceptual relationships. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 3, p. 68-90.

Deriving from the American Association on Mental Deficiency's definition of MR ("subaverage intellectual functioning occurring during the developmental period and associated with adaptive-behavior impairment") and from a major construct of the Lewinian field theory (the somato-psychological relations between physique and behavior) relative to adjustment problems of the deviants are several significant points relating to etiologic and conceptual relationships between MR and emotional disturbance: "pseudoretardation" is a meaningless diagnostic and descriptive construct and should be discarded; previous efforts to distinguish the "child who is retarded because he is disturbed" from the "emotionally disturbed retardate" have failed to provide a differential diagnosis; treatment and planning for the retardate should focus on abilities and strengths, not on a narrow diagnostic category; if society does not provide special therapy for one whose behavior is called defective by social standards, that person cannot be considered to be sociologically handicapped; the retardate's self-concept is socially conditioned; motivational and phenomenological variables affect a retardate's personality; and assessment and treatment of the retardate's adjustment problems must consider overlapping psychological situations and ecological aspects of social psychological research. (87 refs.) - *B. Berman.*

564 **CHESS, STELLA.** Emotional problems in mentally retarded children. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 2, p. 55-67.

Emotional disturbances are proportionately more common among retarded than among normal children. However, each retardate must be studied individually (since the disturbance is not inevitable and shows no special "retarded" characteristics) in terms of developmental history, habitual functioning level, environmental setting, and temperament. Although the coexistence of MR and emotional problems has been reported, this does not mean that MR can be cured by removing an "emotional block." Systematic study of the dynamics of retardation– with definitions of a child's maximum and habitual functioning levels, varying degrees of retardation (IQ differences), and individual temperament–has permitted differential diagnoses of retardates. Further, 4 categories of retarded children with emotional problems have been defined: brain-damaged; reactive disorders (aggression, overdependence, and fearfulness); neurotic behavior disorders (reflecting anxieties or defenses against anxieties); and psychoses. Therapy for each of these varies with specific qualities of the disorder. One study (29 Ss) suggested intellectual level as a determinant of treatment. Conditioning, psychotherapy, restricting the environment, and parental guidance (based on altered parental function) are all potentially useful. (13 refs.) - *B. Berman.*

565 **WEBSTER, THOMAS G.** Unique aspects of emotional development in mentally retarded children. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 1, p. 3-54.

MR is a clinical syndrome best understood in developmental terms, regardless of specific etiology. All who work with retarded children and retardates themselves would benefit from clearer definition of emotional aspects specific to MR. A review of 159 preschool retardates representing all major diagnostic MR subgroups (48% moderately disturbed; 18% severely disturbed) revealed a primary psychopathology and secondary influences in the emotional constituents of the MR syndrome. Differences in quality of emotional development (compared to non-retardates) included immaturity, inadequate differentiation of ego functions, and such special traits as nonpsychotic autism, repetitiveness, inflexibility, and passivity. Among many secondary complications affecting MR emotional development were brain disease, sensory impairment, illness, confused parental expectations, and deprivation. In addition to these, MR children were affected by the same moderate disturbances (fears, inhibitions, grief, loss, and negativism) as are normals. Twenty-seven children showed severe disturbances (psychoses); 11 had demonstrable brain disease. Most notably, the most specific and widespread aspects of retardate emotional development were apparently derived from the same etiologic factors–and at the same early developmental age–as their intellectual retardation. Concepts and terminology for this unique emotional development must avoid reinforcing common images of defectiveness and hopelessness, but should encourage realistic assessment. (50 refs.) - *B. Berman*

566 **BENDER, LAURETTA.** The life course of children with autism and mental retardation. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 7, p. 149-191.

A study of the life course of 50 patients who were diagnosed as schizophrenic and who developed autism in early childhood revealed no unique life pattern for this type, displaying in adulthood all variants of schizophrenia with all varieties of organic defect. At ages 21 to 42, 33 were still chronic, institutionalized patients, while 12 had achieved community adjustment (which varied from psychotics who depended on family to degrees of emotional, social, and financial self-sufficiency). Those with some independence tested in the normal psychometric range, had experienced no intellectual deterioration while maturing, participated socially, and had made a good response to psychoactive drugs. Results indicated that children diagnosed as schizophrenic accompanied by autistic manifestations present, in adulthood, a gamut of schizophrenic pathologies and, in some cases, are misdiagnosed: 3 individuals (6%) were actually organically defective with a life course of MR; still others (also organically defective) had been institutionalized as MR but had displayed a life course of both retardation and schizophrenia. (37 refs.) - *B. Berman.*

567 **MENOLASCINO, FRANK J.** Infantile autism: Descriptive and diagnostic relationships to mental retardation. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 5, p. 115-140.

"Autism" is frequently used in differential diagnosis of severe emotional disturbances in infancy and early childhood, and "autistic reactions" have been reported in a wide number of clinical disorders. Care must be used to avoid confusing it with childhood schizophrenia. Examination of 34 young children presenting autistic reactions revealed 7 distinct categories: sex, physical examination, neurological examination, abnormal EEG, speech retardation, degree of MR, and final diagnosis after further evaluation for treatment. Understanding psychotic reactions in childhood is needed for proper clinical diagnosis of autism and its relation to other disorders, including MR. The major diagnostic problems are general developmental language parameters and behavioral dimensions among moderately and severely retarded children with primitive behavior. Confusion with MR arises from misconceptions of retardate behavior, such as hyperactivity, short attention span and impulsiveness. Retardates have a high incidence of central nervous system dysfunction and complex sensorimotor problems, but the personality traits of moderate and severe retardates are too commonly regarded as "psychotic" features. In general, so far as infantile autism is concerned, there is some knowledge of etiology, considerable descriptive data, and some information on intermediate types and developmental stages. More research is needed. (72 refs.) - *B. Berman.*

568 **SIGUAN, MIGUEL.** El problema psicologico (The psychological problem). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, Chapter 3, p. 61-87.

The question of whether or not the MR have normal personalities is explored. Although theoretically there is no reason why they should not be normal, in reality the majority of MR children do have personality problems. The problems and delays encountered by MRs in their intellectual development are discussed. The demands placed on them by parents or school are a major problem because they are not able to perform as expected and they soon become accustomed to failure as a way of life. The problems encountered by parents of the MR are discussed along with parental rejection and the effects this has on the personality of such children. The personality of the MR is examined, including such features as infantile regression, obstinate and aggressive behavior, and compensatory measures which MR children often use to make up for their handicap. The disadvantages that regular schools present to MRs are outlined, and the creation of special education programs for such children is suggested. Norms which should guide such schools are provided. Eventual social integration of the MR child into society is discussed together with a few guidelines for accomplishing this task. (No refs.) - *R. N. Apold.*

DEVELOPMENTAL ASPECTS — Psychodiagnostics

569 **SIMON, A.; & THOMAS, J. L.** Motor ability and intelligence in 11-12 year olds. *Educational Research,* 12(1):46-50, 1969.

Motor ability test performances of pupils in 3 different intelligence groups were compared and the relationship of motor ability to intelligence was ascertained. The Ss were 132 boys (11 to 12 years old) from a special school for educationally subnormal children, from the lowest stream of a large comprehensive school, and from the midstream of a large grammar school. The motor

ability tests given measured static strength, running speed, power, and dynamic strength and were followed by the Brace Motor Ability Test. The intelligence test administered was the Raven's Progressive Matrices Test, which divided the boys into 3 intelligence groups, where Group A was highest, Group B intermediate and Group C lowest. IQs ranged from 55 to 125. Group A was significantly superior to Groups B and C in static strength and superior to Group B in the more difficult jump tests. The jump test superiority of Groups A and B seemed to be due to greater ability, a desire to understand and analyze the test requirements, and better coordination. No significant mean group differences occurred in the other tests. The results suggest that within a given IQ range, the correlations between intelligence level and certain tests of motor ability may be significantly higher than within a different IQ range. (8 refs.) - *S. Glinsky.*

No address

570 **BRENNAN, W. K.; & HERBERT, D. M.** A survey of assessment/diagnostic units in Britain. *Educational Research,* 12(1):13-21, 1969.

British assessment/diagnostic units, which observe MRs at the borderline of educability or those with multiple handicaps over a long period of time to determine suitable educational programs, exhibit both strengths and weaknesses. Questionnaires sent to 200 Local Education Authorities in England, Scotland, and Wales and to 76 unit heads elicited a 96% and 56% response, respectively, and covered 1,007 pupils. In an effort to determine the pattern of provision of units up to April 1968 and the projected pattern for the immediate future, the survey studied unit staffing, available interdisciplinary support, the nature and duration of the assessment process, suggested educational programs, and the extent of actual placement and program initiation. In general, the evidence suggested that units were not yet able to diagnose pupils' needs or make detailed suggestions for programs. The units functioned best in fostering the child's adjustment to a general school regime and suggesting placement in general terms. Specific recommendations included redesignation of units as school observation units, adequate staffing and support from specialists, review of admission policies, and close monitoring of long-stay pupils. Additional suggestions are: greater use of workers with experience in junior training centers; recognition of effect of unit location upon admissions and placements; more provision for psychotics, SMRs, and the maladjusted; better communication between units and receiving schools; and the need for additional research. (18 refs.) - *S. Glinsky.*

Cambridge University Institute of Education
Cambridge, England

571 **WARREN, SUE ALLEN; & McINTOSH, ERANELL IRENE.** Reported skills of chosen children. *Exceptional Children,* 37(1):31-36, 1970.

A comparison of data (on self-help skills of retarded children) obtained by direct observation by staff psychologists of 196 retardates and data obtained from interviews by direct-care personnel suggested that the latter's reports were reasonably consistent with those by staff psychologists. Accuracy of direct-care personnel reports was judged by measuring Ss' adaptability (in communication, locomotion, self-help, occupational activity, and socialization) with the Vineland Social Maturity Scale and "likeability" with a sociometric survey. Only on self-help skills of infants did direct-care personnel show overestimation of ability. The correlation between direct observation and ward personnel reports was .77 on the Vineland's social quotient; for the 39 children in 3 special programs, the correlation was .65, and for the 157 children in no special program, the correlation was .97. Capable children are more apt to be rated likeable than relatively less able children. Results suggested that what is really a halo effect (an overestimation in judging skills of children in special programs) is really a Hawthorne effect (the attention given children appears to result in progress). It seems worthwhile using both effects constructively. (2 refs.) - *B. Berman.*

Boston University
Boston, Massachusetts 02215

572 **SINGH, S. B.; & VIRMANI, VIMLA.** Perceptual disturbances in primary and secondary mental retardation with special

reference to Bender Gestalt and Draw-a-Person tests. *Indian Journal of Mental Retardation*, 3(1):40-49, 1970.

Bender Gestalt (BG) and Draw-a-Person (DAP) tests administered to 114 MRs (66 primary and 48 secondary) were able to differentiate the 2 groups on various perceptual parameters and provide additional items for studying brain-damaged retardates. With BG, distortion and substitution provided the differentiation; rotation (a classical perceptual motor sign in brain damage) did not differentiate. DAP results revealed body-image differences in hand, head, primitive design, abnormally short figure, bulging eyes, and aggressive look. On both tests, secondary retardates did poorly on perceptual tasks. Simple to administer, these tests provide an overall picture of perceptual disturbances helpful in screening retardates. (12 refs.) - *B. Berman.*

Medical College
Kanpur, India

573 **ANTHONY, ROBERT M.; DAY, HAROLD E.; & STERNITZKE, V. L.** Evaluation of the relationships between the Fairview Self-Help Scale and changes in mental age, when self-help skills are improved through token economy. *California Mental Health Research Digest*, 8(1):36-38, 1970.

A five-month program of behavior modification and token economy was used to teach self-help skills to a group of 24 low-potential, behavior problem MR males. This training resulted in improvement in both self-help skills as measured by the Fairview Self-Help Scale and MA as measured by Stanford-Binet scales; however, the improvement was not significantly different from that in 21 low-to-middle potential male retardates who received no self-help training. (No refs.) - *E. L. Rowan.*

Fairview State Hospital
Costa Mesa, California 92626

574 **HUBSCHMAN, EVA; POLIZZOTO, EMILIA ANN; & KALISKI, MYRA S.** Performance of institutionalized retardates on the PPVT and two editions of the ITPA. *American Journal of Mental Deficiency*, 74(4):579-580, 1970.

Administration of the experimental form of the Illinois Test of Psycholinguistic Abilities (ITPA), the revised ITPA, and the Peabody Picture Vocabulary Test (PPVT) to 53 female institutionalized retardates enrolled in a language development and speech therapy program for 3 years (CA 7 yrs to 20 yrs) demonstrated reliability among the 3 tests, with a slight difference stemming from improved language content after a year's interval. The 2 forms of ITPA showed little clinical difference between them when given to MR females. (3 refs.) - *B. Berman.*

North Jersey Training School
Totowa, New Jersey 07511

575 **COCHRAN, MALCOLM L.** A profile of psychological test scores for retarded adults. *American Journal of Mental Deficiency*, 74(4):582-584, 1970.

Profile data obtained from administering to 90 male institutionalized retardates (CAs 16-34 yrs) the Wechsler Adult Intelligence Scale (WAIS), Stanford-Binet (Form L-M), and Peabody Picture Vocabulary Test (PPVT) revealed an ordinal relationship among the tests even for the lowest WAIS quotients. (The Binet has been given to retardates who cannot score on the WAIS, since there are no norms to approximate WAIS quotients below IQ of 36.) A downward extension of Wechsler-type scores permits further separation of severe and profound adult retardates. (7 refs.) - *B. Berman.*

Glenwood State Hospital-School
Glenwood, Iowa 51534

576 **COYLE, F. A., JR.; & BELLAMY, EDWARD E.** Use of the California Abbreviated WISC with institutionalized retardates. *American Journal of Mental Deficiency*, 74(4):578-579, 1970.

Re-examination of protocols of children, previously tested with the Wechsler Intelligence Scale for Children (WISC), with an abbreviated form of the test (California Abbreviated WISC) yielded a

.93 correlation between the full-scale IQ scores and the 5 subtests comprising the abbreviated form. Scores for the abbreviated and the complete full-scale test forms were quite comparable: mean=59.16, SD=10.58; mean=59.43, SD=11.35, respectively. The abbreviated WISC thus has important screening potential for large groups. (4 refs.) - *B. Berman.*

Southern Illinois University
Carbondale, Illinois 62903

577 **NOLAN, G.; & HACKMAN, ANN.** Cleidocranial dysostosis: Psychological observation of two cases. *British Journal of Psychiatry*, 116(534):543-544, 1970.

Psychological testing of a brother and sister with cleidocranial dysostosis (a congenital condition with ossification defects creating dwarfism and head, facial, and bone anomalies) revealed intelligence considerably lower than that of the control's (a normal brother). The sister (age 36 yrs), who had recently given birth to a normal child and had been hospitalized for puerperal depression, had a brachycephalic skull; X-ray examination showed an open anterior fontanelle. The brother (age 42 yrs) presented a typical picture of the pathology. Both had suffered recent traumatic brain damage. On 2 tests sensitive to brain damage, all 3 performed normally; on digit copying, the 2 Ss with the abnormality scored low; on a memory-for-design test, these 2 Ss also gave abnormal performances. School records showed that both Ss had always been of low intelligence. (9 refs.) - *B. Berman.*

Purdysburn Hospital
Belfast, Northern Ireland

578 **SHERIDAN, MARY D.; & GARDINER, PETER A.** Sheridan-Gardiner Test for Visual Acuity. *British Medical Journal*, 2(5701):108-109, 1970.

Increasing need for vision-screening tests applicable to 5-7-year-old school children and especially to handicapped children of every age led to the development of the Sheridan-Gardiner Test (SGT) for Visual Acuity. A modification of the Stycar charts (9 standard Snellen letters without serifs—H L C T O X A V U—selected according to well-established psychological principles), SGT provides an inexpensive, portable test (finely graded single-letter screening cards for near vision, especially suitable in detecting astigmatism and hypermetropia, and 7-letter key words for distant vision) readily applicable under school conditions to detecting visual problems in mentally and physically handicapped children. Children with missing or paralyzed limbs are encouraged to use any available method, such as eye pointing or touching letters with their noses or toes. Personal testing by the examiner assures attention to a child's individual and clinically revealing manner of response. Since SGT derives from standard visual-acuity tests, transition to its special requirements is eased for handicapped children as they grow in understanding and scholastic performance levels. (8 refs.) - *B. Berman.*

Royal National Throat, Nose, and Ear Hospital
London, England

579 **SWANSON, MERLYN S.; & JACOBSON, ANITA.** Evaluation of the S.I.T. for screening children with learning disabilities. *Journal of Learning Disabilities*, 3(6):318-320, 1970.

Administration of the Slosson Intelligence Test (SIT) to 64 suburban second-grade children referred for learning disabilities showed the test measures primarily verbal intelligence and is, therefore, not altogether satisfactory in screening such children. SIT scores correlated significantly (r=.64) with verbal IQ on the Wechsler Intelligence Scale for Children (WISC) but showed only a .10 correlation with the WISC performance IQ. Since many learning-handicapped children show considerable difference in verbal and non-verbal functioning on the WISC, the SIT would underestimate the abilities of children who do well on the performance but poorly on the auditory or verbal scales of the WISC. (4 refs.) - *B. Berman.*

School District 59
Elk Grove Village, Illinois 60007

580 **VERMA, S. K.; SHAH, D. K.; & TEJA, J. S.** Brain damaged child: Psychometric aspects. *Indian Journal of Mental Retardation*, 3(2):87-121, 1970.

Psychological assessment of a child with brain damage is complex and requires the identification of those areas of relatively impaired and intact function so that sound management and rehabilitation guidelines can be established. Deficits may involve perception, intelligence, and motor functions and may affect academic achievement, school behavior, body image, and/or conceptual thinking. Areas of deficit are not mutually exclusive and may involve considerable overlap. Although the problems of the brain-damaged child are primarily psychological and behavioral rather than medical, signs of organicity are usually present. In spite of the fact that a variety of symptoms related to brain damage have been identified, individual differences are the rule rather than the exception. Psychological tests which can be used to assess brain damage and provide quantitative functional data are discussed. (192 refs.) - *J. K. Wyatt.*

Postgraduate Institute of Medical Education
and Research
Chandigarth, India

581 Developmental screening test. *Nursing Mirror*, 130(5):27-29, 1970.

The Denver Developmental Screening Test does not measure intelligence but detects developmental lags in children, enabling the examiner to determine whether a child's development is within, above, or below normal ranges. Simple to record and administer, the test, consisting of 105 items selected from a number of developmental and preschool intelligence tests, can be used for repeated evaluation of the same child. Administered by nurses, the test is often given in the home where the child may feel more relaxed and perform better. The test is also an excellent device for teaching the mother how to stimulate the child's development through instructive play. (No refs.) - *C. L. Pranitch.*

582 **KAUFMAN, HARVEY I.** Diagnostic indices of employment with the mentally retarded. *American Journal of Mental Deficiency*, 74(6):777-779, 1970.

Administration of 2 diagnostic instruments—the Wechsler Adult Intelligence Scale (WAIS) and the Wide Range Achievement Test's (WRAT) reading and arithmetic sections—to 71 MRs and a cross-validation group of 31 MRs showed that the WAIS comprehension was the variable discriminating best between employed and unemployed retardates. Although the arithmetic test was not significant in the discriminant analysis, arithmetic functioning appeared to be an important factor in preparing retardates for employment. All Ss ranged in age from 17 to 21 years and had obtained full-scale WAIS IQs between 42 and 84. If the comprehension subtest is (as Wechsler says) a commonsense judgmental measure, then didactic programs are needed to prepare MRs for successful employment. (4 refs.) - *B. Berman.*

Marquette University
Milwaukee, Wisconsin 53233

583 **ALPERN, GERALD D.; & KIMBERLIN, CAROLYN C.** Short intelligence test ranging from infancy levels through childhood levels for use with the retarded. *American Journal of Mental Deficiency*, 75(1):65-71, 1970.

Administration of shortened and standard versions of the Cattell Infant and Stanford-Binet intelligence tests to 31 MR children yielded a .97 correlation between the 2 forms. Administration of the standard forms to 28 Ss with Down's syndrome furnished data for construction of a two-thirds shortened form. The test covers an ability range from infancy through childhood, takes one-fourth the time, and has high reliability and validity in measuring general intellectual functioning. The correlation between this short form and Vineland scores was .73; between the Vineland and standard psychiatric ratings, it was .83. Limitations of the shortened form involve the type of population to which its results could be appropriately extrapolated. It has potential for effective, economical measurement of retarded intellectual functioning. (26 refs.) - *B. Berman.*

Indiana University Medical Center
Indianapolis, Indiana 46202

584 **ERICKSON, MARILYN T.; JOHNSON, NANCY M.; & CAMPBELL, FRANCES A.** Relationships among scores on infant tests for children with developmental problems.

American Journal of Mental Deficiency, 75(1):102-104, 1970.

Bayley Scales of Infant Development and the Cattell Infant Intelligence Scale, administered to 30 children (mean age 32.6 mos) referred for developmental problems, yielded a high correlation and a similarity of scores, suggesting the diagnostic interchangeability and equal predictive validity of the tests in this setting. The Vineland Social Maturity Scale showed lower correlation with either of the other tests and cannot interchange with them, since it overestimates developmental functioning. A choice on clinical use of the Bayley and Cattell test would be based on these relative merits: the Bayley test has more item variety and separate mental and motor scales; the Cattell test takes less time to administer and can be combined with the Stanford-Binet intelligence test. (6 refs.) - *B. Berman.*

University of North Carolina
Chapel Hill, North Carolina 27514

585 **BRODSKY, GERRY; LePAGE, TONY; QUIRING, JAY; & ZELLER, RICHARD.** Self-evaluative responses in adolescent retardates. *American Journal of Mental Deficiency*, 74(6):792-795, 1970.

A matching-to-sample task given to 36 male adolescent MRs (18 experimentals, 18 controls) to delineate the role of self-evaluative responses (SERs) disclosed an initial tendency to overevaluate performance, but with contingent reinforcement, SERs became more accurate. The task (presented in 3 phases) required matching an arrow flashed on a screen with one of several directional arrows on the panel. In the first and third phases, all individuals delivered SERs to themselves; in the second phase, the Ss' responses received contingent reinforcement (feedback). The Ss' increased SER accuracy in the final phase was accompanied by fewer positive SERs for incorrect responses. Results indicated that certain behaviors, such as SERs, may become increasingly accurate reflections of other behavior through reinforcement of that behavior. The precise role of the SER requires further explication. (5 refs.) - *B. Berman.*

Fairview Hospital and Training Center
Salem, Oregon 97310

586 **TAYLOR, JOHN F.; WINSLOW, CHARLES N.; & PAGE, HORACE A.** An MA growth curve for institutionalized mild and moderate retardates. *American Journal of Mental Deficiency*, 75(1):47-50, 1970.

Four Stanford revisions of the Binet scale administered in 311 examinations to 636 mild and moderate MRs yielded a best-fitting, negatively accelerated composite MA curve. Although a mental slowdown appeared at age 10, the curve did not reach a horizontal position so that no definite age of arrest in mental growth could be directly ascertained; however, stabilization did appear after age 13 at one-fourth the growth rate for normals. The curve clarified the known finding that IQs for institutionalized MRs are not constant, showing the nature of the negative MA acceleration that accounts for IQ decrease with advancing chronological age. (23 refs.) - *B. Berman.*

Kent State University
Kent State, Ohio 44240

587 **ADAMS, JERRY.** Canter background interference procedure applied to the diagnosis of brain damage in mentally retarded children. *American Journal of Mental Deficiency*, 75(1):57-64, 1970.

Administration of a variant of the Task-Central and Task-Peripheral Forms of the Canter "Background Interference Procedure" (Canter-BIP) to 30 brain-damaged and 30 non-brain-damaged retardates revealed that the Task-Central Form significantly predicted brain damage in retarded children when standard Bender error scores were used; otherwise, analysis of variance showed no sequence or order effect. Discriminant analysis (to ascertain how best to combine the several Canter-BIP scores for diagnosis) disclosed—for each form—multiple correlations with diagnosis but with low predictive accuracy. No obtained index was accurately able to diagnose individual cases, suggesting greater similarity among the 2 groups (especially with the minimal-brain dysfunction group) than that implied by discriminant analysis. Results further showed that there was no relation between brain-damage diagnosis and effects of location of extraneous stimuli. (18 refs.) - *B. Berman.*

William S. Hall Psychiatric Institute
Columbia, South Carolina 29202

588 **LAMB, LLOYD E.** Relative acoustic impedance measurements with mentally retarded children. *American Journal of Mental Deficiency*, 75(1):51-56, 1970.

Relative impedance audiometry (where test probes were inserted into the ear) with 15 MR children and 15 normals (both groups free of hearing disorders) showed reflex-threshold levels slightly lower for MRs. Reflex-thresholds were measured with an electro-acoustic impedance bridge; the test signals were pure tones of 250, 1,000, and 4,000 Hz presented in ascending and descending series. Average levels for normals approximated 90 decibels; for both groups thresholds were slightly better (lower) for descending series. Since only small differences in acoustic reflex thresholds appeared for both groups, this form of audiometry is suitable for retardates as well as normals. A major question concerns the rather large variability in reflex thresholds found within individual Ss. (13 refs.) - *B. Berman.*

University of New Mexico
Albuquerque, New Mexico 87106

589 **NOLAN, G.; & HACKMAN, ANN.** Cleidocranial dysostosis: Psychological observation of two cases. *British Journal of Psychiatry*, 116(534):543-544, 1970.

Psychological tests (Wechsler Adult Intelligence Scale and 4 tests sensitive to brain damage) administered to a brother and sister with cleidocranial dysostosis (a congenital condition causing defective ossification) and a control (a brother without the disease) showed that the latter was considerably more intelligent. The presenting female, who had recently given birth to a normal child, showed a brachycephalic skull with prominent frontal-bone bossing, and defective clavicles, scapulae, and chest. There were no abnormal neural findings. The brother showed a similar typical picture. On 2 of the brain damaged-sensitive tests, all 3 Ss performed normally, but the 2 Ss with dysostosis did poorly on digit-copying and memory-for-design; since both had suffered brain trauma, the brain-damage test results could not necessarily be associated with cleidocranial dysostosis. However, since their academic and work records revealed longstanding low IQ, the dysostosis is probably linked with impaired general intelligence. (9 refs.) - *B. Berman.*

Purdysburn Hospital
Belfast, North Ireland

TREATMENT AND TRAINING ASPECTS – Educational

590 **CARNETT, EUNICE.** Teaching the mentally retarded children–My years in special education. *Journal for Special Educators of the Mentally Retarded,* 6(3):151-153, 1970.

Special education is basically regular education with the mode, pace, and goals adapted to the special limitations, abilities, and needs of the MR. The limitations of the MR child require that special education be functional and enable him to live meaningfully and acceptably in his environment. The special education curriculum is designed for the individual MR and has as its objectives: a healthy body and good health practices; a well-adjusted personality; correct group, community, and social attitudes; fuller participation in home life; basic tool subject competencies; proper work habits and attitudes; and the development of acceptable leisure time interests, skills, and activities. As the child advances to higher level objectives, social maturity and emotional stability, he may eventually be placed in a suitable job. (No refs.) - *S. Glinsky.*

Henderson Public Schools
Henderson, Texas 75652

591 **KOTEK, JOHN R.** Developmental reading for educable mentally retarded. *Journal for Special Educators of the Mentally Retarded,* 6(3):195-203, 1970.

The reading problems of MR students in regular classes were studied to identify and draw attention to MR readers' problems and to form a sound basis for a developmental reading program in various subject areas. Questionnaires were given to teachers who had had MRs in their classes within the last 2 years and to all MR students participating in regular class work. The teachers' questionnaire attempted to determine present practices and suggestions regarding the upgrading of MR reading levels and was returned by 15 teachers. The MR students' questionnaire was given to 17 MRs (CAs 15 yrs. 11 mos. to 20 yrs. 8 mos.; IQs 55 to 84) and solicited their reactions to classroom work. The conclusions were identification of comprehension of required related reading as the MRs' major problem, poor understanding by regular teachers of the MRs' reading problems, realization by the MRs of the need to improve but lack of effort to do so, inadvertent developmental reading programs already in progress in some classes, and existence of a reading requirement for MRs in almost all classes. Recommendations included establishing a reading improvement program, restructuring of the language arts special education class, instituting a system of student reading aides, developing a special class for reading-study skills, improving MR motivation, establishing criteria for the placement of MRs with problems into regular classes, and recognizing the fact that MRs do not belong in remedial reading classes. (No refs.) - *S. Glinsky.*

Unified School District Jt. No. 1
Beaver Dam, Wisconsin 53916

592 **MORRIS, RICHARD M.** A walk through an English mansion with some mentally retarded in Iowa. *Journal for Special Educators of the Mentally Retarded,* 6(3):204-206, 1970.

A vist to a replica of an English mansion constituted a stimulating learning experience for 16 EMRs. The impressions received in the various rooms of the mansion elicited many spontaneous questions and comments, both trivial and thoughtful. The students were exposed to another century and another way of life, and this and various tactile experiences engendered thoughts regarding art, music, singing, beauty, time, and the future. The tour was a vital learning experience which even though not measurable was nonetheless real and meaningful. (No refs.) - *S. Glinsky.*

Polk County Board of Education
Des Moines, Iowa 50309

593 **LARAMORE, DARRYL; & THOMPSON, JACK M.** The implications of parent-teacher effectiveness training for special education personnel. *Journal for Special Educators of the Mentally Retarded,* 6(3):207-210, 1970.

A parent-teacher effectiveness training program which has been successful with large numbers of parents and teachers can enable special education teachers to have more satisfactory relationships with their pupils. The program consists of 8 three-hour training sessions for a maximum number of 25 participants and is divided into didactic lectures, role-playing, and the practice of specific skills. The content of the program centers around learning active listening skills, "I" messages or communicating a problem that is the teacher's by expressing it in terms of the teacher's feelings rather than blaming the pupil, and conflict resolution by means of joint problem-solving. The reactions of a group of special education teachers to the program were very favorable. (No refs.) - *S. Glinsky.*

Sonoma County Schools
Sonoma, California 95476

594 **REICHARD, CARY L.; & REID, WILLIAM R.** The distraction effects of video tape recording procedures in a classroom of educable mentally retarded children. *Journal of Special Education,* 3(4):411-416, 1969.

Video tape recordings (VTR) made in a classroom of EMRs determined several criteria for the reduction of distraction effects. It was hypothesized that there would be no significant differences between distraction responses at the conclusion of the experiment and during the initial recording and no relationship between distractions occurring during the experiment. Video taping was done in an intermediate classroom for EMRs previously unexposed to taping. The camera was positioned at a typical angle, so that distraction responses of both teacher and pupils could be detected. Taping was carried on 35 minutes each morning for 6 days. Control factors included daily identical positioning of the equipment prior to taping with no subsequent movement, identical daily taping times, consistent daily classwork with 13 students, vague description of the experiment to teacher and class so that teacher was unaware of also being monitored, tabulation of only visual and vocal distractions, and no alteration in classroom furnishings. A *t*-test for correlated samples was applied to the distraction curve for each day. The results indicated a decrease in the distraction influence of VTR equipment and personnel with the passage of time and moderately declining curves for each day which were similar in proportion and skewness. The conclusions suggest beginning taping 10 to 20 minutes after equipment and personnel have been introduced into the classroom to insure a minimal number of teacher and student distractions. (No refs.) - *S. Glinsky.*

University of Florida
Gainesville, Florida 32603

595 **PRENTKY, JOSEPH; & MARPET, LOUIS.** Tips for teachers: "Additional resource material for use in curriculum planning by teachers of the mentally retarded." *Journal for Special Educators of the Mentally Retarded,* 6(3):158-160, 1970.

The ability to prepare and use an experience-activity chart is an important asset for the teacher of EMRs. The charts are prepared by teacher and students and are useful as an activity in teaching social, occupational, and language-art skills as well as arithmetic and science. In size, the charts should resemble signs or posters, be clear and legible, and employ correct, complete sentences and various illustrations geared to the level of the students. Different types of charts can be used for: a daily class activities plan; current home, class, or community events; a recording of a conversation; a science, health, or arithmetic experiment; a community visit; a story; or a skill instruction. Such charts promote teacher-student cooperation, utilize student experiences, teach the use of objects, pictures and symbols in communication, and motivate other classroom activities. (No refs.) - *S. Glinsky.*

107-20 125th Street
Richmond Hill, New York 11419

596 **WATTERS, LENORE; & TALKINGTON, LARRY.** A pilot program for emotionally disturbed retarded! *Journal for Special*

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Educators of the Mentally Retarded, 6(3):167-169, 1970.

A pilot program was instituted to modify unacceptable classroom behavior in MRs (6 girls, 9 boys; CAs 9 to 17 yrs; IQs 27 to 68) who had been excluded from special classes due to emotional problems. Adaptive behaviors were developed and strengthened through positive reward, while nonadaptive behaviors were weakened or extinguished through lack of reward or a negative consequence. After a 4-week observation period, the students were assigned to one of 4 class periods and classified into 3 behavior groups (withdrawn, aggressive, and talking-out). The withdrawn group received positive reinforcement; the aggressive group was given both positive and negative reinforcement; and the talking-out group was subjected to deceleration procedures. As a result of the 20-week program, 3 MRs were able to return to the classroom, 11 could function in a small-group setting prior to full-class activity, and practically all deviant behavior was eliminated. One student showed no progress, which emphasized the crucial factor of individual variation in a generally workable program. The feasibility of such a program utilizing only 1 instructor/therapist and simple material was demonstrated. (4 refs.) - *S. Glinsky.*

Boulder River School and Hospital
Boulder, Montana 59632

597 Creative curriculum considerations for the TMR child. *Journal for Special Educators of the Mentally Retarded*, 6(3):171, 1970.

A 15-minute color 8mm film depicting successful classroom experiences with TMRs has been produced at the Helen J. Stewart School in Las Vegas, Nevada. The film demonstrates team teaching techniques with primary children 6 and 7 years of age, the use of 8mm Single Concept film loops, the application of behavior modification techniques with an intermediate class, the utilization of audio carrels for multi-sensory programmed learning, and the development of a table as a vehicle for perceptual experience. Additional films in several other areas are being produced. (No refs.) - *S. Glinsky.*

598 **KELLER, FRANKLIN J.** An outline of an economics education program. *Journal for Special Educators of the Mentally Retarded*, 6(3):185-188, 1970.

The first 6 lessons of Families at Work in the series Our Working World, an economics education program, were presented successfully to 11 first grade EMRs (CAs 11 to 13½ yrs; MAs 6½ to 9 yrs). The 4 parts of each lesson were a record presentation while the children followed text pictures, additional stories for discussion, an activity book, and a resource unit for the teacher. Materials in the first lesson included the economic organization of the family, the concepts of consumers and producers of goods, useful and useless services as well as the division of labor, and tools and machines as economic instruments. The flexibility and open-endedness of the program were the greatest assets and led to fruitful discussions and student involvement and insights. (1 ref.) - *S. Glinsky.*

No address

599 **MELANIE, M.** Can thinking be improved? *Parent-Educator*, 3(7):7A-8A, 1 70.

Two primary level MR classes (13 boys, 7 girls; CA 8 yrs 11 mos to 12 yrs 9 mos; IQs 49 to 77) indicated that MRs can grow in ability to handle abstract ideas and do religious thinking. The pupils were taught 32 lessons based on 12 religious readiness concepts over a 7-week period. Materials were presented to 1 class by means of silent, colored single concept films and to the other by film strips, transparencies, and pictures. During instruction, questions were asked on the levels of simple repetition, factual information, and the expression of relationships, so that every child achieved success on one or another level. The data revealed that all but 2 of the children increased their ability to respond to all 3 levels of questions. The study implied that MRs can be stimulated to abstract thinking not only in school, but also at home through a variety of planned experiences. (No refs.) - *S. Glinsky.*

No address

600 **SHEILA, M.** A bird in the hand. *Parent-Educator*, 3(7):4A-6A, 1970.

Classroom experience and various studies indicate

that MR achievement is closely related to teacher expectation of achievement. One author commented that teacher expectations exerted a greater influence than community environment, while another author noted in teachers of MRs a general lack of expectation of achievement. A pair of researchers developed the concept of the self-fulfilling prophecy, which means that a special education teacher's expectations of high or low pupil achievement will come true largely due to the teacher's unconscious teaching adjustments to accomplish the expected results. In the investigation, a random 20% of a group of children tested was reported to their teachers as showing promise of "intellectual blooming." Testing 1 year later did reveal substantial intellectual gains in the random 20%. Another investigation tested 160 boys and 107 girls (IQs 55 to 80) in 32 elementary, junior high, and special education classes. The results were reversed so that high scorers were given low scores and vice-versa. The teachers, both with and without MR teaching experience, taught the pupils with the expectations derived from the supposed scores, and re-testing 5 months later revealed achievement in those with false high scores and lack of achievement among those with false low scores. These results point to the necessity in special education for definite, substantial, clearly-defined classroom goals and purposeful work toward these goals, which will transmit to the MRs a sense of the possibility of goal attainment. (3 refs.) - *S. Glinsky.*

St. Coletta's School
Jefferson, Wisconsin

601 **RODGERS, DOROTHY.** The special child and music. *Parent-Educator,* 3(7):1A-3A, 1970.

The brain-injured child can be introduced to the world of sound through music at home in the form of records and rhythm band instruments. Drum rhythms can teach number concepts, while body rhythms to music promote gross muscular training. A rhythm band furthers musical training, muscle coordination, and tone recognition. Listening to nature, vehicle, and machine sounds on a record stimulates the MR's interest in his environment and provides a bridge to other sound interests. A natural culmination of this training is the singing of songs, which should be simple and clear in concept and appealing to the child. Other instruments which can be utilized with ease are the autoharp, a Montessori set of bells, and a drum. Suzuki method violin instruction, which relies upon learning by ear, is also an excellent means of enhancing the MR's musical progress and enjoyment. (1 ref.) - *S. Glinsky.*

New Hope School
Canon City, Colorado

602 **BUFFER, JAMES J., JR.; & PFEIFER, EDWARD J.** Found: New industrial laboratory experience for retarded. *Industrial Arts and Vocational Education,* 59(1):64-65, 1970.

An instructional unit in industrial arts for eighth grade EMR boys resulted in improved school achievement and attitudes. The unit was a 6-week study program of industry involving 12 days of laboratory instruction for 1 hour per day. The program's objectives were to modify MRs' negative characteristics, promote their educational and social development, and help make them more productive and useful citizens. The daily lessons included: visitations to plastics and other factories; classroom production of plastic toys and jewelry by using miniature models of injection, liquid-forming, and vacuum-forming plastics fabricating machines; assumption of production roles by the boys; and analysis and discussion of the various industrial techniques. The benefits of the program were the observation of leadership and cooperation among the factory workers, transfer of these behaviors to the classroom situation, reliance of the MRs upon each other rather than the teacher, and a sense of accomplishment and pride. (No refs.) - *S. Glinsky.*

Ohio State University
Columbus, Ohio 43210

603 **OTHELIA, M.** Teaching self-discipline. *Parent-Educator,* 3(6):6A-8A, 1970.

Patient and consistent classroom behavior management can instill self-discipline in the MR child. Obedience is fostered by providing food for the intellect, body, and emotions. Intellectual challenge must be appropriate for the age of the child

and be based upon the introduction of one idea at a time, realistic and well-planned lessons, arousal of natural curiosity, and physical and social reinforcement of correct answers and behavior. Physically, a variety of activities and sensory experiences forestall inattention and misbehavior. The emotional needs of the child include: love; encouragement through touch, words, and smiles; consistent guidance; acceptance; and a sense of security gained through routine. MRs respond more to emotional than to intellectual appeals and, as all children, learn more from what adults do than from what they say. (No refs.) - *S. Glinsky.*

St. Coletta School
Jefferson, Wisconsin

604 "Subnormality in the seventies"—Resolution of the National Executive Committee, January 2, 1971. *Parents Voice,* 21(1):4-5, 1971.

In view of the imminent transfer of the responsibility for the education of the MR to the Department of Education and Science, the National Society for Mentally Handicapped Children urges that several important measures be undertaken to assure maximum and immediate benefits to MRs. These recommendations include: examining carefully the current and proposed MR teacher training provisions; securing the continued services of the local health authority Training Centres through higher salary scales and professional status for their staffs; enabling educators to help determine the educational needs of children in hospitals, special care units and pre-school institutions; and re-thinking of the meaning and function of education for SMRs. The Society pledges its complete support in effecting the transfer. (No refs.) - *S. Glinsky.*

605 **RETISH, PAUL M.** Issues and trends. *Focus on Exceptional Children,* 1(8):8-9, 1970.

Sex education for the MR is a responsibility shared by the school, the church, and the home. School curricula must give the educable MRs an understanding of their sexual roles in society, explicate their environment, and facilitate entrance into it. Sex education for the retardate, through special classes, must prepare him for marriage, family, and social living. (No ref.) - *B. Berman.*

University of Iowa
Iowa City, Iowa 52240

606 **MEYEN, EDWARD L.** Sex education for the mentally retarded: Implications for programming teacher training. *Focus on Exceptional Children,* 1(8):1-5, 1970.

Little selectivity has been shown in deciding who will teach sex education to MRs. Two in-service training approaches showed the need to change the behavior of teacher as well as of the retarded. In the "consulting teacher approach," 20 experienced special-class teachers, who used curriculum publications of the Curriculum & Development Center of the University of Iowa with 600 attending teachers, stressed self-concept and understanding feelings and body changes. Results showed significant increases in study committees, purchase of materials, and in the number of teachers giving more attention to sex education for MRs. In a 2-week workshop, 42 persons (90% female and only 38% special-class teachers) sought to help teachers formulate awareness of needs and responsibilities in sex education for the retarded. A considerable number of teachers showed concern about their role and displayed traits that would inhibit their effectiveness as instructors of the retarded. (No ref.) - *B. Berman.*

University of Iowa
Iowa City, Iowa 52240

607 Resource materials. *Focus on Exceptional Children,* 1(8):11-12, 1970.

Spreading interest in special programs for returning the handicapped child to the regular classroom has produced a wide variety of instructional materials: The Society for Visual Education, Inc., (1345 Diversey Parkway, Chicago, Illinois 60614) offers a complete safety program (*The Patch the Pony Classroom Kit*) to combat the child molester. Eye Gate House, Inc. (146-01

Archer Avenue, Jamaica, N.Y. 11435) offers *Life Begins*, a filmstrip series on reproduction. Creative Scope, Inc. (509 Fifth Avenue, New York, N.Y. 10017) has prepared *How Babies are Made* to teach children (CA 5-12) basic physical aspects of reproduction. Kimberly-Clark Corporation's Life Cycle Center (509 Fifth Avenue, New York, N.Y. 10017) disseminates materials on feminine-hygiene education *(How to Tell the Retarded Girl about Menstruation)* and Harris County Center for the Retarded (P.O. Box 13403, Houston, Texas 77019) has prepared a set of 35 mm filmstrips: *Teaching Good Conduct and Personal Hygiene to Retarded Teenagers*. (5 refs.) - *B. Berman.*

608 **LILLY, M. STEPHEN.** Special education: A teapot in a tempest. *Exceptional Children*, 37(1):43-49, 1970.

Traditional special-services education for the mildly handicapped should be discontinued immediately, since they have produced little that is superior to the regular class settings, are illogical in practice and product, cannot (in many instances) be considered educational, and serve chiefly to erect a parallel system for expiating institutional guilt. The 2 most powerful agencies in the field—the Council for Exceptional Children and the Bureau for the Education of the Handicapped—are guilty of perpetuating these conditions. New models to work from are available (The Educational Modeling Center, Diagnostic/Prescriptive Teaching, Guaranteed Performance Contracting, and others) to provide the interaction between student and teacher necessary for development in this field. (22 refs.) - *B. Berman.*

University of Oregon
Eugene, Oregon 97403

609 **SIMCHES, RAPHAEL F.** The inside outsiders. *Exceptional Children*, 37(1):5-15, 1970.

Salvation for the handicapped through special education lies in involved, intelligent individuals, not in technology and computers. Parent-operated projects have provided larger facilities, new techniques (especially individualized and programed instruction), dissemination of information, and new dimensions, but teacher education has not sufficiently advanced and money and resources have been misused. The key to the future lies in highly motivated, specially trained educators, supported by all the social forces marshalled behind lawyers, legislators, administrators, and school-board members. (No ref.) - *B. Berman.*

State Education Department
Albany, New York

610 **JOHNSON, K. E.** Fundamental educational problems suggested by recent investigations into the characteristics of moderately retarded children. *Australian Journal of Mental Retardation*, 1(5):141-144, 1971.

Three case histories illustrate the fact that moderately retarded children (IQs below 55) have learning problems which are quantitative (not qualitative), have specific and definable problems, and are educable. A child's primary emotional status affects his relation with the total milieu; this status is established before induced learning occurs—and such learning relies on visual-motor, auditory-vocal, and kinesthetic-tactual channels and their combinations as well as on other senses. Restrictions of these channels (which can affect efficient concept development) were assessed with various tests in the 3 cases, and combinations of learning modes were defined that interfere with the child's development. It is feasible to elevate performance levels in each functioning area and, thus, establish learning readiness and achievement in reading, numbers, and social and industrial competence which were once thought to be unattainable by MR children. (No refs.) - *B. Berman.*

Cromehurst Special School
Lindfield, New South Wales, Australia, 2070

611 **BRADLEY, BETTY HUNT.** The effects of institutionalization upon prescriptive teaching for the moderately mentally retarded. *Australian Journal of Mental Retardation*, 1(5):150-153, 1971.

Observations of 180 moderately retarded children (Stanford-Binet MA 2 to 7 yrs; IQ 20-65) demonstrated that prescriptive teaching (application of diagnostic information to education) requires

awareness of how the retarded learn, knowledge of the task, and use of motivational devices in teaching specific tasks. Classes must be small and individualized, and teachers must determine curriculum (functional and meaningful) goals, follow each child's progress, use direct or indirect methods as needed, and know what demands are made on the student outside the classroom. The child needs communication skills—not irrelevant skills; his motor-adaptive, socialization, and academic skills should be analyzed. Sexual adjustments and personality growth are important concerns. Staff intercommunication is essential (7 refs.) - *B. Berman.*

Columbus State Institute
Columbus, Ohio 43223

612 **GRAY, SUSAN W.** Intervention with mothers and young children: The focal endeavor of a research and training program. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation,* New York, New York, Appleton-Century-Croft, 1970, p. 508-519.

The Demonstration and Research Center for Early Education—associated with Peabody College and the Kennedy Center—develops and operates programs designed to improve the educability of deprived children. Intervention with young children and their families is used as well as demonstrations of classroom techniques and materials. Of those enrolled in the Early Training Project, the younger siblings in an experimental group who had extended contacts with a home visitor improved 13 to 14 points on the Stanford-Binet Intelligence Test. The family intervention program focuses on the mother as a key figure in structuring the environment for improving a child's competence; it uses 3 intervention groups—maximum impact, curriculum, and home visitor. The curriculum group, organized about achievement aptitudes and attitudes and coping skills, utilizes a lead teacher and 4 demonstration assistants. Modest but consistent gains on the Stanford-Binet Intelligence Test for the children and on the Wechsler Adult Intelligence Scale for the adults have been noted. Adequate evaluation of intervention programs must be long-range. (2 refs.) - *B. Berman.*

613 **HEBER, RICK F.; & DEVER, RICHARD B.** Research on education and habilitation of the mentally retarded. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970, p. 395-427.

A review of research in education and rehabilitation of mild MR found that these areas are the major social tools for treating this condition, which is defined by cultural criteria and judged by arbitrary social standards. A considerable percentage of adult institutionalized retardates (IQs above 50) found employment but showed no great manual or mental dexterity; they were not adequately prepared for life in their community. Special educational classes use inappropriate curricula; also, questions are raised about methodology. A Puerto Rican study of adults (ages 23-49) found the retardate twice as likely as the normal to be rated unsuccessful. The same ineffectiveness was found in traditional preschool settings. The survey found special attention directed to social environment as a cause and cure of mental defect. To determine whether MR can be prevented, the Milwaukee project, applying intensive stimulation to a group of experimental infants selected by maternal IQ and epidemiological considerations, showed (on still very sparse data) that the experimental Ss may turn out to be more verbal than the control children. (52 refs.) - *B. Berman.*

614 **GALLAGHER, JAMES J.** Educational research needs in the field of mental retardation. In: Haywood, H. Carl, ed. *Social-Cultural Aspects of Mental Retardation.* New York, New York, Appleton-Century-Croft, 1970 p. 428-432.

The large number of problems facing the retarded (in school, at home, and on the job) demands additional research. Adult retardates face a narrowing job market in our urban technology as well as a decline in family influence. Schools and social agencies must, therefore, furnish new support. The retarded youngster, not specially identified, must be found and given early attention; for example, 29 studies show a 10-point IQ superiority at age 7 for children who had early intervention. Many aspects of educational research cry for attention: social scientists must study all the facts, including

those environmental and genetic in nature; attitudes and approaches of experimenters affect the outcome of research, and a teacher's expectation of student performance affects that performance; and there are vast implications for behavioral change in operant conditioning. General needs in educational research include: a major theory of intellectual development, a strong attempt to understand the retarded child's motivational systems, curriculum development utilizing what we know about children, closer long-term classroom observation of learning situations, and informed prediction of the future. In sum, we need provision of maximum growth opportunities. (7 refs.) - *B. Berman.*

615 **HARSHMAN, HARDWICK W.** Toward a differential treatment of curriculum. *Journal of Special Education,* 3(4):385-387, 1969.

Special classrooms, designed to educate exceptional children, have not done their job. They have not provided retarded children with a differential model—only with a "watered-down" curriculum. Grouping, alone, will not guarantee achievement at any level—gifted or retarded. We must work with these individuals as we find them in the classroom and change our classroom methods as needed. The focus must be on the child's behavior—not on some clinical label as "MR," "emotionally disturbed," or "brain damaged." (2 refs.) - *B. Berman.*

Rhode Island College
Providence, Rhode Island

616 **HARVEY, JASPER.** To fix or to cope: A dilemma for special education. *Journal of Special Education,* 3(4):389-392, 1969.

Practitioners in special education have reached a point where they are going to have to "cope" (deal with what they have) rather than endlessly "fix" (change what they don't like). Pros and cons of special education are illustrated by statements of Dunn ("intervention programs for the intellectually deprived are effective") and of Christoplos and Renz ("if clearly beneficial objectives. . . cannot be identified, then the exceptional group. . .should not be segregated"). The question arises, if deviants are not segregated, are we not then teaching to the mean? Is this desirable? Each of us interprets special education in terms of his own frame of reference. Certainly, special education—working with social, emotional, fiscal, and educational realities—ought to provide diagnostic or prescriptive teaching for the various exceptional groups. (6 refs.) - *B. Berman.*

University of Texas
Austin, Texas

617 **KAUPPI, DWIGHT R.** The emperor has no clothes: Comments on Christoplos & Renz. *Journal of Special Education,* 3(4):393-396, 1969.

For the most part, Christoplos and Renz' conclusions about special education are valid. Special education's claims of a sound philosophical basis and practical outcomes are not supported by empirical evidence, and segregating on the basis of disability does not yield benefits. Although Christoplos and Renz would have difficulty showing special education is undemocratic in principle, it can be maintained that, until the means of individualizing education are developed and the beneficial consequences of separate subgroups are clear, segregation is discriminatory. Labeling of students becomes an explanation of a student's behavior and influences perceptions (his own and others) of his abilities. Handicapped children must be evaluated by their behavior, not by their classified exceptionalities, and grouped only in terms of specific educational goals. (2 refs.) - *B. Berman.*

State University of New York
Buffalo, New York

618 **MILLER, JERRY G.; & SCHOENFELDER, DIANE S.** A rational look at special class placement. *Journal of Special Education,* 3(4):397-403, 1969.

Recent attacks on special classes, while claiming to be logical, have been ill-concealed emotional outbursts. A notable example is that of Christoplos and Renz, who are guilty of faulty and incomplete

reporting. Each individual is entitled to appropriate schooling, whether in a normal or segregated classroom, and all states have guidelines to assure proper education of the handicapped. Each child must receive the physical and psychological help he needs as an individual, and special-class placement is frequently of great benefit to the handicapped. The claim that special education discriminates against minority groups—that low socioeconomic status causes spuriously low scores on tests of intellectual ability that label the MR—is false. Research has found that, beyond the age of 8, the IQ is quite stable (test-retest reliability ranging from .90 to 1.00). There has been fear of admitting that the MR child is different in kind, rather than degree. Special-education programs respond to the needs of exceptional children. There is, however, a need for more research to determine the effects of integrated and segregated education of the handicapped on both normal and exceptional children. (15 refs.) - *B. Berman.*

Philadelphia Public School System
Philadelphia, Pennsylvania

619 **VALLETUTTI, PETER.** Integration vs. segregation: A useless dialectic. *Journal of Special Education*, 3(4):405-408, 1969.

The opponents of segregating exceptional children fail to recognize that such placement provides the teacher with legitimate relief (that is socially and educationally acceptable) from the physical and psychological burden of deviate children. Segregation may not be patently helpful for the exceptional child, but the deviant integrated into the normal classroom can have destructive consequences for normal children and teachers alike. Special placement may save some children (particularly some minimally handicapped) from psychological damage. The rejected retardate frequently has no way of escape, and revised self-image is often dramatically witnessed in institutions for the retarded. In any event, there is no backtracking: special programs have already shaped teacher attitudes and expectations. Indeed, the crucial questions are teacher values and attitudes, and their influence on pupil self-perception and performance. (1 ref.) - *B. Berman.*

Coppin State College
Baltimore, Maryland

620 **CHRISTOPLOS, FLORENCE; & RENZ, PAUL.** A final word. *Journal of Special Education*, 3(4):409-410, 1969.

Logic, not passion, is a requirement of debate, and a true professional must persist in questioning the principles underlying special-education programs. Heterogeneous classrooms have the capability for solving the problems of deviance and are not only better able than homogeneous classes to accept and cope with exceptional children but are more in conformance with social goals of democracy and world cooperation. Changes in teacher training are a clear necessity: meeting the educational needs of the deviant in the regular classroom must be a goal of teacher training. (2 refs.) - *B. Berman*

Coppin State College
Baltimore, Maryland

621 **CHRISTOPLOS, FLORENCE; & RENZ, PAUL.** A critical examination of special education programs. *Journal of Special Education*, 3(4):371-379, 1969.

The current proliferation of special-education classes has not achieved the purported goal of such programs—to meet the exceptional child's needs which cannot be met in ordinary classrooms. In public-school systems, special classes mete out only segregation and preferential treatment for exceptional children; they are merely expedient measures to resist a perceived threat to goals for "normals." The need to establish the priority of cooperation over competition has not been met. There is no evidence that social or academic benefits accrue to regular students by the presence or absence of exceptional children in regular classrooms or that special-class placement of educable MRs has academic benefits. The present argument suggests a need for research on the effects on regular students of inclusion of various kinds of exceptionals in regular classes. Segregation of any type denies the majority a familiarity with that type—thus avoiding any need for value changes—and institutionalizes segregation. Unfamiliarity with "deviations" breeds fear and rejection of the unknown; inclusion of deviates in regular classrooms should humanize the attitudes of the "normal" population. (52 refs.) - *B. Berman.*

Coppin State College
Baltimore, Maryland

622 **ENGEL, MARY.** The tin drum revisited. *Journal of Special Education,* 3(4):381-384, 1969.

The case of the child who refused to grow up emotionally, and continuously beat his tin drum, is a point of departure for observing that, in psychology and education, comprehension of the "why" of a behavior coupled with the frustration of inability to alter it causes arrest or regression in scientific thought. Reintroduction of order and clarity may cause controversy, as, for example, in the question of special classes, which opponents claim should be abolished as undemocratic and useless in benefitting the handicapped. Research evidence in this area—scant and inconclusive—has suggested that: grouping has profound effects on children, but measurement techniques are not sensitive enough to register these effects; teaching methods in special classes are anemic—not too different from those in regular classes; as a corollary to the above, the content of experience in special classes remains unelucidated; evaluation of teaching or therapy is meaningless without assessing the teacher's or therapist's personality; and the kinds of children participating in special classes must be assessed and the data treated accordingly. (No refs.) - *B. Berman.*

City College of the City University of New York
New York, New York

623 **NORMAN, HENRY.** Toward developing educational plan for mentally retarded. *Motive,* 17(1):25-29, 1971.

Since September 1969, a project to develop a State Educational Plan (Ohio) for institutionalized MR children has attempted to develop and implement new and improved educational practices. The project incorporates research information and knowledge about instructional approaches. It focuses on the specific characteristics and needs of the institutionalized MR and uses an interdisciplinary approach. The first phase of the program is aimed at assessing the size, scope, and quality of existing educational services and at identifying areas requiring modification. Among the project activities which have been completed are presentation of the details of the project to State Institution Superintendents, a project conference for institution education personnel, and visits to the institutions by the project director. Questionnaires regarding present programing have been obtained from each institution. Multidisciplinary committees composed of educational and medical personnel have been established to develop educational guidelines. A 2-day workshop for representatives from State institutions for the MR offered information on new techniques, practices, curricula, and teaching methods. Phase I had a tremendous effect in that it created awareness of the need for a comprehensive State Educational Plan among institution personnel and elicited their enthusiastic cooperation. (No refs.) - *J. K. Wyatt.*

Ohio Division of Mental Retardation
Columbus, Ohio

624 **PEACH, W. J.** Rebus flash cards and traditional orthography flash cards: A comparative study. *Slow Learning Child,* 17(2):75-88, 1970.

Comparisons of the use of Rebus pictographic symbols, Rebus symbols with traditional orthography, and traditional orthography alone in reading instruction with EMRs and slow learners revealed that effectiveness was best evaluated on an individual basis. The 12 Ss (CA range 6-10 to 13 yrs; Slosson IQ range 49-97; 7 males, 5 females) were enrolled in a summer enrichment program. Criterion was established with pre- and post-tests with 50 traditional orthography flash cards. Daily tutoring on an individual basis was provided by 12 graduate students. Six Ss received instruction with the traditional orthography flashcards alone. Instruction for the remaining Ss included the traditional orthography flash cards, Rebus flash cards, and a combined presentation of both types of cards. Five of the Ss using the Rebus symbols showed a slow but steady increase in the number of symbols identified. Only 3 Ss in the traditional orthography group evidenced consistent gains, and 2 of these had high pretest scores. Mean word gain for the traditional orthography group was 8.6 words and for the Rebus and traditional orthography group, 11.1 words. (7 refs.) - *J. K. Wyatt.*

Georgia Southern College
Statesboro, Georgia 30458

625 **SEWELL, SANDRA.** The teacher's contribution to the treatment of infantile autism. *Slow Learning Child*, 17(2):89-96, 1970.

Education for autistic children should focus on the training of perceptual discrimination, sensory-motor skills, and social behavior and on preparation for normal school education and family and peer activities. The educational program should be planned in conjunction with a clinical team. Training in perceptual discrimination depends on the developing eye contact with the child, increasing his attention span, and varying the visual presentations. Music can be used to develop sensory-motor abilities. A large part of social training should be concerned with the child's ability to form relationships. Preparation for normal school education should occur when the child has developed some speech, appropriate social behavior, and relatively consistent intellectual performance. As the child improves, the family will need to adjust to having a child who is not yet normal but no longer in need of specialized help. (7 refs.) - *J. K. Wyatt.*

No address

626 **TAYLOR, JAMES R.** An introduction to precision teaching with the handicapped. *Slow Learning Child*, 17(2):97-106, 1970.

The precision teaching method is based on behavior modification principles but differs from traditional operant conditioning approaches in its emphasis on simplicity of language. Teachers using precision teaching methods must know exactly how they have changed a behavior. They use the method to plan systematical alterations in the environment which will maximize learning. Lindsley's COLAB (common language analyzing behavior) system enables teachers to use easily understood language to analyze behavior. The steps in precision teaching are to pinpoint the behavior, record the behavior, consistently alter the environment, and systematically apply additional environmental alterations. Research data indicate that almost 85% of the teachers succeeded in changing behavior with one environmental alteration. An additional 10% was successful with 2 alterations, and the remaining 5% used 3 alterations. (25 refs.) - *J. K. Wyatt.*

Wabash Valley Education Center
West Lafayette, Indiana

627 **ADAMS, ANNE H.** Physical education for young handicapped children. *American Corrective Therapy Journal*, 24(6):172-175, 1970.

Between 1969 and 1970, the number of Exemplary Early Childhood Education Centers for Handicapped Children (funded by the U.S. Office of Education's Bureau of Education for the Handicapped) increased from 24 to 43, reflecting increased local and national interest in the problem. Areas of concern in developing suitable programs include patterns of development (unstructured or planned?), trained staff, curricula and methodologies, and assessment techniques. There is continuing need for research, expansion, and parental and pedagogical involvement in these programs. A list of early childhood centers is provided. (1 ref.) - *B. Berman.*

University of Texas
Austin, Texas 78712

628 **KNOWLES, CLAUDIA JANE.** The influence of a physical education program on the illnesses and accidents of mentally retarded students. *American Corrective Therapy Journal*, 24(6):164-168, 1970.

A physical-education program given to 223 retardates (105 boys, 118 girls) produced declines in illness in all Ss and a considerable increase in accidents among boys. (The increase in accidents for girls was not significant.) The Ss (Latin Americans, Negroes, and whites) with IQs < 70 participated in a 2 year physical education project supported under Title III of the Elementary and Secondary Education Act. Illness and accident data recorded for each child and subjected to chi-square analysis showed that illness decrease by sex was the same regardless of the severity of treatment, but for boys the decrease was greater for illness requiring only outpatient treatment. Accident increases (due to accelerated physical activity, fights, and self-inflicted events) among boys were greatest in those needing no treatment. Ss with low motor ability (tested by the Brace Motor Ability Test) experienced more accidents than expected; those with average ability showed few accidents. (20 refs.) - *B. Berman.*

University of Texas
Austin, Texas 78712

629 **ENSMINGER, E. EUGENE.** A proposed model for selecting, modifying, or developing instructional materials for handicapped children. *Focus on Exceptional Children*, 1(9):1-9, 1970.

A system is proposed to aid teachers in analyzing, modifying or developing instructional materials for children with specific learning strengths and weaknesses. The system considers 2 basic components: the developmental stages of learning and the input-output systems of receiving and expressing information at any of these developmental stages. The learning component is grouped according to 4 areas: motor, perceptual, language, and symbolic learnings. The input-output component regards the manner in which the instructional materials are presented (visual, auditory, and kinesthetic) and the response expected from the child (motor and verbal). By analyzing instructional materials for a specific child the teacher can match the input-output dimensions of the material to the input-output dimensions of the learner. The implication of this technique is that when a child is having difficulty in responding to one type stimuli, such as auditory, it may be necessary to provide other stimuli such as visual or tactual to assist the learner in making a response. The 2 components of the instructional model provide flexibility to any instructional material by offering a framework within which to modify the material for a child who is unable to learn through standard procedures. (39 refs.) - *C. L. Pranitch.*

Georgia State University
Atlanta, Georgia 30303

630 **HIGGINS, CONWELL.** Mathematics for the handicapped: Programming concepts. *Focus on Exceptional Children*, 2(4):8-10, 1970.

A multi-media programed instructional system has been developed to teach selected mathematical concepts to EMRs. Programed into a manipulative auto-instructive desk, the concept is developed first with objects, then pictures, and finally numerals. The sequence, beginning with the physical representation of the numerical properties of objects and progressing to symbolic representation, is a means of combining doing, seeing, and saying into a highly organized multi-sensory learning experience for the EMR. One study comparing a group instructed through the multi-media system with a control group taught directly by the teacher found that the difference in initial learning and retention favored the experimental group beyond the .01 level of confidence. (15 refs.) - *C. L. Pranitch.*

Albany Board of Education
Albany, New York

631 **CAWLEY, JOHN F.** Teaching arithmetic to mentally handicapped children. *Focus on Exceptional Children*, 2(4):1-8, 1970.

A comprehensive system of mathematical instruction for MRs will include multi-media programed instruction, original learning, overlapping activities, multiple option approaches to verbal problem solving and a variety of other tactics. The system should incorporate utilitarian arithmetic within the framework of a program designed to build ideas and understanding. Attention is given to problems of assessment, a language-based component of quantity, and an approach to managing an MR class for verbal problem-solving activity. Illustrations and a diagnostic teaching matrix are included. (3 refs.) - *C. L. Pranitch.*

University of Connecticut
Storrs, Connecticut 06268

632 Education for autistic children. *Lancet*, 1(7644):481, 1970.

In a debate in the House of Lords (England), it was argued that autism should be included in the categories of handicap which require special education facilities. At the present time, there are 5,000 autistic children in England and Wales, 700 of whom are in hospitals for the MR. There are only 21 special education centers for 3,000 autistic school age children, and all are located in the southeast. The Government pointed out that educational responsibility for MRs lies with the local educational authorities who should provide suitable education whether or not a specific handicap belongs to a category. The educational needs of autistic children vary, for they exhibit a wide range of abilities. The proposal to transfer responsibility for the education of MRs from the

Department of Health to the Department of Education was favorably received. (No refs.) - *J. K. Wyatt.*

633 **RICE, DONALD.** Learning disabilities: An investigation in two parts. *Journal of Learning Disabilities*, 3(4):193-199, 1970.

Part II of an investigation of learning disabilities was concerned with the implications for school curriculum and program planning and had a strong educational orientation. There is a need for the serious consideration of curriculum and procedure modifications aimed at making educational processes meaningful for pupils in the lower half of the IQ range. Among the students who experience difficulty with the graded, academic structure of most schools are the socially-culturally disadvantaged, the mildly retarded, and those with dull or borderline mental ability. Curriculum development for children with learning disabilities should be based on specific information concerning learning disabilities. There is a need for psychoeducational evaluation which identifies strengths, weaknesses, abilities, and disabilities. Public schools can begin to solve the problems presented by children with learning disabilities by becoming more involved in preschool education, emphasizing early identification, providing ungraded schools and curricula, and conducting research on the efficacy of specific techniques. Research on reading and dyslexia is also needed. (11 refs.) - *J. K. Wyatt.*

Indiana University Medical Center
Indianapolis, Indiana 46202

634 **DIAZ ARNAL, ISABEL.** El problema educativo (The educational problem). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, Chapter 5, p. 113-143.

The characteristics which a special school for MR children should have are described. Schools where the child attends classes but lives at home are considered best because the child does not lose contact with his family. Guidelines which boarding schools should meet in order to be an acceptable place to educate MRs are presented. The objectives of therapeutic pedagogy in special schools are given. Different levels of retardation and what can be accomplished through these curative pedagogic techniques are outlined. Activities which MRs can perform and their use of free time are discussed. The personality and educational preparation of the specialized teacher for the MR are described. (2 refs.) - *R. N. Apold.*

635 **CORMANY, ROBERT B.** Returning special education students to regular classes. *Personnel and Guidance Journal*, 48(8):641-646, 1970.

Fifteen special-class students selected to attend regular classes after participating in a special screening and orientation program with counselors attained a higher mean grade-point average (GPA) than did 15 controls in regular classes. The screening program was developed to counter the existing tendency to allow students in special education to remain there even though many (the culturally deprived and the physically handicapped) may be able to compete successfully in regular classes. Too often, a fatalistic attitude considers special education terminal: counselors must be oriented toward moving students back into regular classes. They have a right to self-fulfillment and maximum attainable success. In the screening-orientation session, counselors and students met individually and in groups to analyze all aspects of transition and adjustment to regular classes; reading specialists gave individual instruction. No one was forced to enter the regular class; however each had to be recommended by the counselor. Comparison of the experimental group with the control group after placement in regular classes showed that there were 9 failures among the controls, but none among the experimental group. Teachers characterized the controls as lazy and troublesome; the experimental Ss as industrious and friendly. Overall results of the program appeared very favorable. (6 refs) - *B. Berman.*

Pennsylvania State University
State College, Pennsylvania

636 **SPENCER, D. A.** Education of mentally subnormal children. *British Medical Journal*, 1(5699):822, 1970. (Letter)

The job of teaching MR children (rejected as "difficult," "disturbed," or "too low-grade" by established authorities) requires, on the part of the worker in MR, more perseverance, initiative, and intelligence than the comparatively easy job of teaching the teachable. The progressive hospital must organize play groups and other occupations for these so-called "unteachables" by using nurses and volunteer help. (1 ref.) - *B. Berman.*

Stansfield View Hospital
Todmorden, Lancashire, England

TREATMENT AND TRAINING ASPECTS – Psycho-social

637 **WHEELER, ANDREW J.; & SULZER, BETH.** Operant training and generalization of a verbal response form in a speech-deficient child. *Journal of Applied Behavior Analysis*, 3(2):139-147, 1970.

An 8-year-old echolalic boy who had been diagnosed variously as brain-damaged, autistic, or retarded and whose speech was essentially "telegraphic"—he omitted most articles and auxiliary verbs—was trained to use a sentence form containing articles and verbs to describe a group of pictures (thirteen 7- by 9-inch picture cards from the Peabody Language Development Kit) and then learned to generalize the sentence form to new stimuli (a set of pictures not used in training or reinforced). The S's training combined labels already in his repertoire to instruct him in forming grammatically correct sentences. Since the S rapidly developed responses to both stimuli, it appeared that a functional response class or generative language had developed. Every eventually learned response does not need to be directly trained. (13 refs.) - *B. Berman.*

Southern Illinois University
Carbondale, Illinois 62901

638 **WEILAND, I. HYMAN.** Discussion of treatment approaches. In: Churchill, D. W.; Alpern, G. D.; & DeMyer, M. K., eds. *Infantile Autism.* Springfield, Illinois, Charles C. Thomas, 1971, p. 200-211.

Treatment of autism must not depend on any theory but must be applied selectively to the existing autistic varieties. Techniques advocated by Lovaas, Hingten, and Ruttenberg—whether applied to controlling psychiatric behavior, imitating social awareness, developing a relationship, or use of aversive stimuli—have limitations; whatever course is followed, the child falls short of normal behavior, and continues to show bizarre and stereotyped thinking and response. The most significant treatment is to breach the concrete barrier between the child and reality. He must be assured that we are not dangerous and are rewarding him, and therefore, we expect more attention from him. Whether the treatment is replacement therapy (to make up for some deficiency, such as mother love) or tries to stimulate new responses or change maladaptive responses, or whether it tries to free or increase the child's potentials to compensate for congenital or acquired deficits, the therapy's rationale must be based on the disorder's pathology. (18 refs.) - *B. Berman.*

639 **HINGTGEN, JOSEPH N.; & CHURCHILL, DON W.** Differential effects of behavior modification in four mute autistic boys. In: Churchill, D. W.; Alpern, G. D.; & DeMyer, M. K., eds. *Infantile Autism,*

Springfield, Illinois, Charles C. Thomas, 1971, p. 185-199.

Four boys, diagnosed as having early childhood schizophrenia of the autistic type, given (after pretest imitative responding) 3-5 weeks of intensive training to reinforce 3 types of imitative responses to adults (use of body, use of objects, and vocalization) demonstrated in post-testing a considerable increase in imitative behavior. Training which followed the establishment of a basic imitative repertoire sought to develop more complex behavior (imitative and non-imitative); 2 Ss (in less than 10 hours' training) recorded incipient auditory-visual, visual-vocal, and auditory-motor associations indicative of receptive and expressive language. The other 2 Ss failed in this, even after 600 hours' training. The 2 successful Ss can now identify dozens of objects and obey simple commands; one now reads and prints a few words. One of the other 2 can now associate complex dissimilar visual stimuli; the other cannot. Intensive imitative training, when motivation is high, may expand an autistic child's "cooperative set" and behavioral repertoires. Behavioral paucity may be associated with basic perceptual disturbances. (12 refs.) - *B. Berman.*

640 LOVAAS, O. IVAR. Considerations in the development of a behavioral treatment for psychotic children. In: Churchill, D. W.; Alpern, G. D.; & DeMyer, M. K., eds. *Infantile Autism.* Springfield, Illinois, Charles C. Thomas, 1971, p. 124-144.

The utilization of learning theory, especially that part called reinforcement theory (specifically, operant conditioning), with 11 children classified as autistic or schizophrenic has achieved results superior to those of traditional psychotherapy. Several behavioral components (language, cooperation and competition, and certain rudimentary intellectual behaviors) fit the reinforcement pattern. Research focus here was on the acquisition of symbolic rewards and language and on establishing selected social events (by associating them with termination of pain) as symbolically rewarding. Pain was consequently successfully used to suppress abnormal actions (self-destruction, self-stimulation, or persistent inattention). Language amelioration (in mutes or schizophrenics in whom grossly inadequate speech is commonplace) included the use of imitative speech patterns with reinforcement therapy. After mastering certain learning stages, the Ss showed enunciation improvement without extrinsic reinforcement. The new approach isolates and studies refined components in a child's total situation and easily communicates its principles. Increasingly complex behavior will pose no methodological and theoretical problems. (15 refs.) - *B. Berman.*

641 BARTZ, WAYNE R.; & LOY, DONALD L. Using love in behavior therapy. *Hospital & Community Psychiatry*, 21(10):333-334, 1970.

When given unconditionally, behavioral components of love (such as praise, attention, and gestures of affection) will not lead to improvement in behavior since they do not allow the patient to discriminate between desirable and undesirable behavior. When love is made contingent upon desirable behavior, the frequency of that behavior will increase; similarly, love given in response to undesirable behavior will reinforce the undesirable behavior. Reinforcers (love, tokens, or whatever) are not the keys themselves to behavior improvement; the contingencies are. (2 refs.) - *C. L. Pranitch.*

DeWitt State Hospital
Auburn, California

642 LANE, ROBERT G.; & DOMRATH, RICHARD P. Behavior therapy: A case history. *Hospital & Community Psychiatry*, 21(5):150-153, 1970.

A behavior modification technique using positive reinforcement (coffee and praise) was successful in the virtual elimination of aggressive behavior in a self-mutilating MR psychotic male (CA 33 yrs). Initially, the S was rewarded at 15 second intervals if he did not try to pull out his fingernails during the 3 training periods/day. Within 2 months, he was able to sit for 45 minutes, 3 times daily

without nail pulling. Reinforcement was given at regular 15-minute intervals but later changed to a random schedule. During a 1-year period, the S's appropriate behavior increased substantially, all forms of restraint were discontinued, and the S became able to accompany other patients on walks and watch television in the day room. (1 ref.) - *C. L. Pranitch.*

Wisconsin State University
Oshkosh, Wisconsin 54901

643 **BRICKER, WILLIAM A.** Identifying and modifying behavioral deficits. *American Journal of Mental Deficiency*, 75(1):16-21, 1970.

Behavior-modification technology for identifying and controlling behavioral deficits focuses on instructional methodology rather than on the nature of learning. It stresses developmental aspects of behavioral deficit, not retardation or neurological implications. Construction of a better teaching technology to eliminate behavioral deficits requires valid programs that are replicable and efficient. Replicability depends on clear explication of reinforceable responses to permit untrained persons to duplicate a trained individual's efforts. Efficiency is attained by basing programs on increasing knowledge of content structure and of motivation required to elicit the proper responses. Such programs, when available, have diagnostic potential for defining the nature of developmental deficits in retarded children. (24 refs.) - *B. Berman.*

George Peabody College
Nashville, Tennessee 37203

644 **BERNSTEIN, NORMAN R.; & MENOLASCINO, FRANK J.** Apparent and relative mental retardation: Their challenges to psychiatric treatment. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 4, p. 91-114.

MR is not a simple entity but reflects a variety of social, organic, cultural, familial, psychogenic, and ego-developmental syndromes. The etiologic spectrum ranges over a wide variety of disease models. Approaches to diagnosis and treatment of MR must consider these facts; such approaches are helped by Kanner's distinction between "apparent" and "relative" MR manifestations in young children. A child with "apparent" retardation appears retarded when evaluated diagnostically but not at other times and circumstances. Illustrations cited include cases of early infantile autism, childhood schizophrenia, childhood psychosis, and atypical developmental profile. A child with " relative" MR shows a mild cognitive handicap magnified by negative socioeconomic events that inhibit use of his minimally impaired attributes. Illustrations cited include cases of central language disorder (childhood asphasia), minimal cerebral dysfunction, hypsarrhythmia, and infantile spasms. Each of these categorizations can deeply influence a child's adaptive capacity and responsiveness to external stimuli. A significant conclusion is that handling during early development profoundly affects a child's intellectual and motor functioning. (43 refs.) - *B. Berman.*

645 **WOODWARD, KATHARINE F.; JAFFE, NORMAN; & BROWN, DOROTHY.** Early psychiatric intervention for young mentally retarded children. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 12, p. 276-293.

Application of psychiatrically oriented nursing to 61 retarded preschool children (most showing no, or minimal, organic damage) yielded considerably improved functioning, even to the point of normal-range testing. Ranging in age from 15 months to 5 years, the Ss displayed neurotic patterns with or without schizoid or autistic features, possible psychosis with prominent negativism, and minimal or questionable brain damage. Favorable gains were attributable, in part, to participation of the families, who were of varied racial, religious, and ethnic backgrounds (none extremely underprivileged) and of average intelligence. The therapeutic team—psychiatrist, psychologist, and social worker—employed wide diagnostic techniques, with special emphasis on speech therapy. The Ss, after preliminary examination, were placed in small groups in a stimulating, creative, nursery-school setting. Unique to the program were initial

individual psychotherapy sessions where the Ss were readied for group therapy activities. In these cases, psychogenic factors may be largely contributing to inhibited mental development, and exploration of these factors must be an important part of treating these children. (30 refs.) - *B. Berman.*

646 **GARDNER, WILLIAM I.** Use of behavior therapy with the mentally retarded. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 11, p. 250-275.

Developments in behavior-modification techniques have provided new and exciting approaches to psychological treatment of MRs. Based on various learning and behavior concepts related to stimulus-response relations, behavior modification regards behaviors described as inadequate, inappropriate, neurotic, maladaptive, or pathological as learned behaviors and, therefore, susceptible to change. Treatment focuses on the overt developmental, behavioral, and educational actions that are causing difficulties for those responsible for the child, and may be applied to Ss ranging from the mildly to severely retarded. The technique, which seeks to eliminate or reduce the undesirable behavior patterns, uses extinction and punishment procedures, primary aversive stimulation, time-out methods (removal of inadvertent reinforcers), and the inoculation of behaviors incompatible with those to be eliminated. The Rainier School (Washington) in conjunction with the University of Washington has produced various procedures for influencing academic, motivational, and social behavior of MRs in a classroom setting. Perils in these new techniques derive from over-enthusiastic application and improperly trained personnel. (56 refs.) - *B. Berman.*

647 **LOTT, GEORGE.** Psychotherapy of the mentally retarded: Values and cautions. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 10, p. 227-250.

MRs are human, with the gamut of emotions, conflicts, and inhibitions experienced by normals, and can benefit by psychotherapy, especially if they are verbal and have self-awareness. The effectiveness of psychotherapy depends on the therapist's personality, and in Tarachow's view, the therapy should establish an object-relationship between patient and therapist, and supply the patient with displacements, stability, and defensive supports. Retardates, with feebler intellects and less frustration tolerance than normals, have strong needs for sublimation and defenses and conflict-resolving therapy. However, therapists must recognize that retardates vary in capacity for treatment and training, represent a composite group with many types of defects, and do not respond easily to examination and testing. Many retardates with primary or secondary emotional problems would be helped by formal psychotherapy supplemented often by psychoactive drugs; those with aphasia, deafness, or speech handicaps may need remedial education and supportive therapy; the organically handicapped need focus on personality development. Early specific diagnosis and planned training are essential. (84 refs.) - *B. Berman.*

TREATMENT AND TRAINING ASPECTS – Occupational

648 **BAILLIE, RITA M.** Employment of the mentally subnormal. *Lancet,* 1(7651):844-845, 1970. (Letter)

A recent employment survey of hospitalized MRs indicated that 10% worked daily in the community, some under satisfactory conditions at union-approved rates. For those found to be working at "special" rates and in excess of 40 hours/week, efforts were made to improve wages and/or reduce working hours. Employable patients were trained in various departments of the hospital

prior to outside work. Others incapable of outside employment often became useful in performing tasks within the hospital and were paid the maximum allowable wages. Excessive working hours in the kitchen and on the wards were sometimes noted. Regular reviews are desirable in order to ensure that wages, working hours, and type of work are appropriate. Employment, where possible, should be encouraged in order to allow the patients to earn extra money and to enhance their self-respect. They should not be viewed as a source of cheap labor or as replacement for permanent staff. (2 refs.) - *M. S. Fish.*

Botleys Park Hospital
Chertsey, Surrey, England

649 Subnormality in the seventies: A service to be proud of. *Parents' Voice*, 20(3):6-7, 1970.

A study tour of the services for the MR in East Sussex (England) included 2 housing (hostels) facilities, a horticulture training center, and an industrial training center. Many of the MR adults from 1 of the hostels are enrolled at the industrial training center. The adults are trained in the manufacturing of garden furniture and light engineering tasks. Twenty-five percent of MRs completing the 2-year training course have been independently employed at full union rates. MR adults at the horticulture training center farm the 30 acres of ground and are trained for employment as gardeners for surrounding estates. (No refs.) - *C. L. Pranitch.*

650 **RAVENTOS, JESUS.** El problema laboral (The labor problem). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, Chapter 9, p. 219-242.

Institutions which exist for the MR include learning centers and sheltered workshops. Learning centers should include training in self help, communication, socialization, and occupation. Sheltered workshops are not only trade teaching centers, but serve as the place of employment for the MR. General services of the sheltered workshop include medical facilities, administrative office, kitchen, and dining room. The sanitary aspects, dress, kitchen, merchandise, and installations of the workshop are discussed in detail along with the number of workers and the type of work done. Suggestions are given for determining the type of work which a new arrival should perform. The type of personnel that a workshop should have, the salaries which should be paid, and opportunities for employment for the MR are described. The MR in Spain need new labor laws whether they work in workshops or in industry. The building, organizing, and setting-up of a workshop for the MR are considered. (No refs.) - *R. N. Apold.*

TREATMENT AND TRAINING ASPECTS – Therapy

651 **WEISS, CHARLES F.; YAFFE, SUMNER J.; CANN, HOWARD M.; GOLD, ARNOLD, P.; KENNY, FREDERIC M.; RILEY, HARRIS D., JR.; SCHAFER, IRWIN; STERN, LEO; & SHIRKEY, HARRY C.** An evaluation of the pharmacologic approaches to learning impediments. *Pediatrics*, 46(1):142-143, 1970.

Although accurate evaluation of drug effectiveness in learning disabilities presents many difficulties (terminology, methodology, standardization, and controls), certain drugs have promise. Clinical signs of learning disabilities are classified by etiology and descriptive terminology; specific terms applied include cortical brain dysfunctions, mood and thought fluctuations, stuttering, speech-voice disorders, EEG patterns, and learning deficits. Drug-evaluation methods depend on the behavioral manifestations being assessed and include standardized tests of intelligence and personality. A valid determination of genuine pharmacologic ef-

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fects requires controlled, comparable, long-term studies. (2 refs.) - *B. Berman.*

No address

652 So much to give—In Bishop's Stortford. *Parents Voice*, 20(2):12-13, 1970.

Physiotherapy sessions for 22 severely handicapped children, who have shown substantial progress, were held 3 times a week. Many inexpensive, home-made appliances assisted in therapy, such as a football made from wool fragments, waist and foot restraints made of straps and sand-filled bags, a washing line strung between posts to guide walking, and an adjustable baby bouncer. Many mothers and other helpers assisted in exercising the children and provided the love, care, and encouragement which make therapy successful. The handicapped children are accepted by other children in play and, in turn, make their own contribution to others' enjoyment. (No refs.) - *S. Glinsky.*

No address

653 **MOUDGIL, AVINASH C.** Teaching menstrual hygiene to a mentally retarded girl. *Indian Journal of Mental Retardation*, 3(1):50-54, 1970.

A structured, concrete program to teach menstrual hygiene has improved the behavior of a 16-year-old retarded girl. Born to an educated mother, the girl (IQ 60)—eldest of 4 children—had had great difficulty in menstrual grooming but is now learning (guided by her mother) when to change and how to keep track of periods. Practice sessions, used as reinforcements, have been effective. The adolescent retardate, in varying degrees, may have the same needs as her normal peer for independence and mastery of menstrual grooming. (6 refs.) - *B. Berman.*

Postgraduate Institute of Medical Education and Research
Chandigarth, India

654 **WATT, SUSAN.** Dentistry for the mentally retarded. *Australian Children Limited*, 3(12):385-388, 1970.

Prevention of dental caries in MR children—as in normal children—is best achieved by community-water fluoridation, proper diet, good oral hygiene, and guidance of a dentist. Parents of handicapped children need special dental guidance on diet and oral hygiene which should be supplemented by flouride painting of newly erupted teeth, routine X-rays, and restorations. Certain dental anomalies are more frequent in MRs than in normal children; also caries are more rampant due to neglect. In the United States, recognition of the special dental problems of the MR has produced special community programs in Texas, Michigan, and New York for training graduate students and establishment of standardized management programs. The National Institute of Dental Research, in a 2-year study, has used topically applied fluoride gel to reduce tooth decay in fluoride-deficient areas. Dental care for handicapped children requires understanding and proper management. (7 refs.) - *B. Berman.*

No address

655 **SCHAEFER, H. H.** Self-injurious behavior: Shaping "head-banging" in monkeys. *Journal of Applied Behavior Analysis*, 3(2):111-116, 1970.

Extinguishing of head banging (a frequent occurrence among the MR) in 2 male monkeys by operant conditioning confirmed the findings of investigators who have controlled self-destructive human behavior by manipulating environmental variables. The self-destructive behavior of the animals (kept in separate rooms but able to hear each other) was shaped, controlled, extinguished, then re-established with the use of standard banana pellets, monkey chow, fruit, and peanuts as scheduled consequences of head hitting, with various word combinations as spoken stimuli during behavior reinforcement or extinction. Established principles of operant behavior adequately explicate the influence of environmental variables on self-destructive behavior (in animals or humans), which can be shaped by successive approximation with reinforcers

effective enough to sustain or extinguish behavior under the influence of given stimuli. Each case of human head banging must be analyzed for the presence of control stimuli and reinforcers. (9 refs.) - *B. Berman.*

Patton State Hospital
Patton, California 92369

656 **WRIGHT, MARGARET, M.; & MENOLASCINO, FRANK J.** Rumination, mental retardation, and interventive therapeutic nursing. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 9, p. 205-223.

Experiences with the rumination syndrome (bringing up into the mouth of previously ingested food by manipulating the tongue and throat muscles until regurgitated food is either swallowed or allowed to drool from the mouth) in 4 retarded children point to the benefits of specific interventive nursing in treating this malady. This primitive behavioral manifestation is not rare but can easily escape attention. Treatment in 3 phases involved collaboration of all nursing personnel who used external substitutive experiences, rechanneled self-stimulating behavior, and modified interactive experiences with ongoing developmental potentials. Early prevention of problems of this kind requires close attention to crises which can damage a child's future development. (15 refs.) - *B. Berman.*

657 **COLODNY, DOROTHY; & KURLANDER, LEROY F.** Psychopharmacology as a treatment adjunct for the mentally retarded: Problems and issues. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 14, p. 368-386.

Controversy over the use of psychotropic drugs with MRs and their hazards can be diminished by examining the issues and anxieties surrounding the drugs. Although no drug can cure MR, many can improve the retardate's life. Those with brain damage, the hyperactive and distractible (many of these are pseudoretarded) respond well to drugs, with great gains in conduct and family relations. Tranquilizers are beneficial in many with severe retardation, such as is found in PKU or uncontrolled epilepsy, or where neuropathology produces an organic psychosis. Physicians must consider the medical rationale in each case, the drug's side effects and dangers of severe reactions, the "clouding of consciousness," and moral implications. Psychoanalysis objects to drugs and emphasizes the "unconscious mind." Other considerations involve outpatient versus inpatient approach, family objections, mode and evaluation of treatment, and attitudes of teachers of the retardates and the clergy. An over-riding consideration is the manner in which medication is offered to the patient: his interest, cooperation, feelings, and sense of dignity are of paramount importance. (21 refs.) - *B. Berman.*

658 **SLIVKIN, STANLEY E.; & BERNSTEIN, NORMAN R.** Group approaches to treating retarded adolescents. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 18, p. 435-454.

Group psychotherapy is effective in treating retarded adolescents (who can relate, verbally or non-verbally, to the therapist) by diminishing hyperactive response to emotional distress, avoiding consequent rejections that impair personality, and improving their social, educational, and work adjustments. The therapist, who must respond actively and without inhibition, gains insight into basic ego dynamics, especially in cognitive functioning. He needs innovation and imagination to elicit repressed feelings from self-deprecated ego structures. He must deal with problems of sibling rivalry, pairing, identification with the therapist, the whole gamut of sexual activity and fantasies, and high anxiety levels that cause overt aggression and physical assault (girls are more destructive than boys). Faced with initial rejection in his efforts, the therapist must seek ways to establish therapeutic alliances, stimulate active discussions, and overcome communication problems. He will find important aid in utilizing auxiliary leaders from among the retardates to whom the group will look for behavior guidance. Most surprising, the therapist will find effective response to formal psychotherapy from retardates with IQs as low as 45. (25 refs.) - *B. Berman.*

659 **MOWATT, MARIAN H.** Group therapy approach to emotional conflicts of the mentally retarded and their parents. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 17, p. 422-435.

Widely-used, group-therapy approaches hold promise for relieving emotional conflicts of MRs and their families. Observations of 25 retarded young adults and their families, subjected to psychotherapy and psychodiagnostic tests, revealed interactions surprisingly similar to those in the families of the physically handicapped. Meetings of a mothers' group revealed that the mothers had feelings of being trapped in a never-ending caretaking, worried about the child's future when the parents were gone, and fantasized about sudden betterment of their lot. There was also strong concern about public attitudes, sexual problems, and difficulties in setting reasonable limits on the children's activities. Group meetings of the retarded Ss disclosed that they had great interest and intense feelings about their problems, ventilated resentments about restrictions, and were concerned about sex. Frequently, the more intelligent encouraged the more retarded in expressing themselves. The young people laughed, joked, and expressed anger easily; the mothers were restrained and stoic. These sessions, supplemented by videotape feedbacks, offer rewarding results for both retardates and their families. (15 refs.) - *B. Berman.*

660 **LIPMAN, RONALD S.** The use of psychopharmacological agents in residential facilities for the retarded. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 15, p. 387-398.

A survey of psychoactive drugs used on institutionalized retardates showed a very consistent pattern of drug usage in 51% of retardates. The practitioner is faced with a wide array of drugs, and choices are difficult. Psychotropic drugs, especially the sedative phenothiazines (chlorpromazine and thioridazine), are being used to control behavior of aggressive, hyperactive patients, although some evidence shows the behavior improvement is at the price of reduced alertness and cognitive efficiency. Evaluation of the usefulness of these drugs for the hyperactive retardate must consider the effects on educability as well as on behavior. (31 refs.) - *B. Berman.*

661 **FREEMAN, ROGER D.** Psychopharmacology and the retarded child. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 13, p. 294-368.

Recent enthusiasm for treating behavior problems of retarded children with psychoactive drugs must be tempered by studies of claims and counterclaims (frequently exaggerated) and of the individual child's needs and reactions to drugs. An overview is presented of the history of drug use and the special methodological considerations when dealing with the autistic, psychotic, asphasic, brain-damaged, cerebral-palsied, deaf, blind, and physically handicapped retardates. Available drugs include the major tranquilizers or antipsychotic agents (phenothiazines, rauwolfia alkaloids, and butyriphenones) and the minor tranquilizers (diphenylmethane derivatives, diol derivatives, benzodiazepines, sedatives and hypnotics, amphetamines, and many others). In addition, there are the host of anticonvulsants, hormones, vitamins, and special compounds making up the drug arsenal. Still heading the list, in the opinion of many, is chlorpromazine, imipramine, dextroamphetamine, diphenhydramine, chloral hydrate, and paraldehyde. Choice of a drug for a particular case brings up the whole gamut of individual idiosyncrasies. Unsuccessful results may reflect inadequate dosage or duration, unsuitability of the S for drug treatment, or need for further review of familial and environmental aspects. (377 refs.) - *B. Berman.*

662 **CORIAT, LYDIA.** El problema de la infancia (The problem of infancy). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, Chapter 11, p. 269-291.

Acceptance by parents of the condition of their MR child is viewed as a first positive step toward

helping the child and themselves. The child's physical sensations should be stimulated in the same way as those of a normal child. MR babies should be helped to discover their own bodies. Specific suggestions in this respect are given for the mongoloid baby, those with cerebral lesions, and those who are retarded but without alterations of the muscular tone. Parents can help these babies to hold up their heads and encourage them to crawl. Games which the mother can play with her 7-8 month old retarded child are described. Meal times should be a source of learning, sociability, and independence. Self-feeding should be encouraged and advantage should be taken when the child indicates an interest and a desire to feed himself alone. Small chores should be given, according to individual cases, once the child is 3-4 years old. The MR child should be encouraged to clothe himself. Suggestions are offered on how to help the child in the development of his manual activities. (No refs.) - *R. N. Apold.*

663 **WERTHEIM, E. S.** The syndrome of multiple minimal handicaps: Active involvement of the child, family, and school in the management. *Australian Paediatric Journal*, 6(3):111-118, 1970.

A departure from the traditional method of handling the child with multiple minimal handicaps assigns an active role to patients, parents, teachers, and professional workers in diagnosis and management rather than their being mere receivers of instructions from others. Applicable to families in which the children are not grossly disturbed, this method requires early intervention with a definite assault on crucial factors. Since the approach stimulates self-help and the use of latent abilities, it lightens the load of overworked clinical services. (2 refs.) - *B. Berman.*

University of Melbourne
Melbourne, Australia

PROGRAMMATIC ASPECTS – Planning and Legislative

664 **MARTIN, EDWIN W.; & WESTON, ALAN J.** Better education for handicapped children in the United States. *Slow Learning Child*, 17(2):68-74, 1970.

The Bureau of Education for the Handicapped serves as a catalyst to the growth and development of educational programs in the United States. The Bureau supports teacher training programs and research and demonstration projects and provides grants to State and local educational agencies for the improvement, expansion, or initiation of educational programs. The Associate Commissioner of Education is responsible for developing a long range plan for Federal activities to support education for handicapped children. Financial support for educational programs for handicapped children is the responsibility of the Division of Educational Services. The Division of Training Programs makes grants for the preparation of professional educational personnel to public and private non-profit institutions of higher learning and to State Departments of Education. A wide variety of research, demonstration, dissemination, and media projects is supported by the Division of Research. (No refs.) - *J. K. Wyatt.*

Bureau of Education for the Handicapped
Department of Health, Education, and Welfare
Washington, D. C.

665 **RUBIN, ELI Z.** A psycho-educational model for school mental health planning. *Journal of School Health*, 40(9):489-493, 1970.

An alternative model to the traditional approach to mental-health programs for children can help school personnel in early identification, screening, and remediation of problem children. Traditional thinking views maladjustment as deriving from environmentally determined intrapsychic conflicts that impair coping, learning, and behavior control; these conflicts originate from such factors as rejection, marital discord, and adverse parental attitudes. The alternative view seeks maladjustment sources in the immediate situation (a deficit in adaptive skills) and examines the child, home, and school for evidence of the stresses they are inducing. The old view pays too little attention to the effects on personality of physical, sensory, or cognitive lacks. The new "social-competence" model helps the child acquire social and occupational skills and psychological attitudes necessary for successful coping. It recognizes that environmental stress influences individuals differently. In this way, teachers helped by tests of linguistic, visual, auditory, and cognitive functioning can make early identification of maladjusted children. A comprehensive assessment can identify those who need a completely different educational program or one that supplements regular classwork. (23 refs.) - *B. Berman.*

Northeast Guidance Center
Detroit, Michigan 48224

PROGRAMMATIC ASPECTS – Community

666 **LAFRENAYE, LINDA JEAN.** Helping the mentally retarded. *Journal for Special Educators of the Mentally Retarded*, 6(3):189-190, 1970.

Senior Teens Aid Retarded is an organization of teenage high school students dedicated to assisting MRs and increasing public understanding of MRs and their special needs. The group has 27 teenage

members, each of whom is responsible for an MR for a period of 6 to 12 weeks. Meetings are held on a weekly or bi-weekly basis on Sunday afternoons for such activities as bowling, trips to parks and beaches, arts and crafts sessions, picnics, and gym days. All activities are organized by the members; financing is through fund raising events and the help of local merchants. Opportunity for religious instruction is also made available to the MRs. The members' enthusiasm and willingness to do things with, rather than for, the MRs resulted in close bonds of friendship between members and the MRs and the acquisition of new skills by the MRs. (No refs.) - *S. Glinsky.*

No address

667 **HUTCHISON, ALEXANDER.** Community care services for the mentally retarded in Britain. *American Journal of Public Health*, 60(1):56-63, 1970.

Community care services for MRs in Britain encompass programs in diagnosis, counseling, screening, training (at home or training centers), and residential care including hostels. The Mental Health Act of 1959 made the Local Health Authorities responsible for community care of all MRs, except those in special schools administered by the Local Education Authority. Assignment of care to one authority or the other depends on the degree of retardation. After diagnosis of MR, Local Health Authority services provide counseling of parents, screening for phenylketonuria, and training either at home or at centers. The latter are divided into special day centers, junior training centers for SMRs and TMRs, and adult training centers and sheltered workshops. The workshops provide domestic and industrial work training, socialization, and vocational guidance. Independently living MRs have the opportunity to reside in hostels. (No refs.) - *S. Glinsky.*

90 Buckingham Palace Road
London, S.W. 1, England

668 International outlook at AGM. *Parents Voice*, 20(2):7, 1970.

According to an address by Bengt Nirje, Secretary General of the Swedish National Parents' Association, the emphasis in Sweden is on integrating MRs into the community and providing services to meet their needs. Various taxes support services, and subsidies are paid directly to MR parents. If a retardate cannot be educated within the general educational framework, he is enrolled in a special school, which contains a pre-school, a school for basic education, and a vocational school. Compulsory education lasts until the twenty-first birthday or to the twenty-third if there are extenuating circumstances, and may even be provided at home. The basic philosophy of Swedish volunteer organizational work is normalization or the creation of patterns of care and daily life most closely approximating normal life. The public is also educated to understand and accept MRs in daily life. (1 ref.) - *S. Glinsky.*

669 **CARSTAIRS, G. H.** New horizons overseas. *Parents Voice*, 20(2):6-7, 1970.

A visit to several Middle and Far East cities reveals that people in developing countries are beginning to recognize the special needs of the MR. In Singapore, the Chinese are pioneering in the education and care of MRs, while the gloomy situation in Calcutta is relieved only by the work done by volunteer agencies. In Delhi, the first MR residential institution in that country has been created. Modern technology has eliminated much physical work and shifted the bulk of the working force to the service and care occupations. The tasks of the future will be cultivation of interest in ourselves and concern for each other, and in this, MRs can participate and contribute to society. (No refs.) - *S. Glinsky.*

No address

670 **SHEARER, ANN.** "We want to see their faces." *Parents Voice*, 21(1):16-17, 1971.

Two conferences explored the normalization of MR living in society in the light of Scandinavian ideas and experience, particularly that of Sweden. The aim of the Swedish MR services is to enable the handicapped to live as normally as possible. This concept changes the manner of housing MRs to one of domiciling MRs in small, family-style dwellings near the center of towns where they

have a minimum of supervision, and have opportunities to work and live normally, including marriage. In education, the MRs are fully integrated into all levels of classes, and all segregated schools are forbidden. The British pattern of separate education was questioned, and British reactions to changes in both education and facilities were open but cautious, due to uncertainty over community acceptance of MRs. (No refs.) - *S. Glinsky.*

No address

671 **HASSELBARTH, MAYNARD.** Denver's residential program for young retardates. *Rehabilitation Record,* 11(1):32-37, 1970.

A combined residence and occupational training program in a community setting prepares young adult MRs for independent employment and living. The transitional residence program, in operation now for 3 years following a 2½ year pilot program, serves 20 male and 20 female young adult MRs. A resident parent couple teaches various behavior and personal living skills, and this is supplemented by individual and group counseling on a regular basis by staff personnel and a consultant psychiatrist, psychologist, and physician. The teaching of constructive use of leisure time is emphasized through various organized social activities, such as formal dances and competitive sports. Job training in the nearby vocational center leads to eventual job placement in the community, with or without independent living. After the second year, 20 MRs had employment, with 4 living completely independently and 16 semi-independently in the project's apartments and dormitory. The cost of such an approach, including continuous supervision in a living situation when necessary, is much less than that of living in a state institution. (No refs.) - *S. Glinsky.*

No address

672 **BRANDON, DAVID.** The consumer and statutory services. *Parents Voice,* 20(2):31, 1970.

In group discussions, parents of MR children voiced criticism of existing MR governmental services. Eight mothers of MR children held discussions for 8 successive weeks with a social administrator. Areas of criticism included insufficient contact with parents, poor coordination with medical services, rigidity in the thinking of social workers, too little practical advice from general practitioners, an air of secrecy regarding the MR's condition, and lack of para-medical facilities such as speech and physiotherapy. Although fundamentally optimistic about community attitudes, the parents felt no involvement with the social services, which implied an attitude of elitism on the part of the services. Parent energy and knowledge must be incorporated into MR services, and local societies must learn political and pressure skills in order to obtain a larger share of social services. (No refs.) - *S. Glinsky.*

No address

673 Making a will. *Parents Voice,* 20(2):32, 1970.

Making a will is always desirable and even more so when an MR child is involved. Basically, a will is effective from the date of death, can be revoked at any time in several ways, and should be drawn up by someone with sufficient legal expertise. When an MR child is involved, money should not be left directly to the child but to trustees, and stipulations should be made regarding the use of the interest or capital as well as the disposition of the money upon the death of the child. Claims upon the money made by local authorities, should the child come under their jurisdiction, can be avoided by a discretionary trust fund. The testator of the will should appoint a minimum of 2 executors who will survive him in years. The functions of parent and money administrator may either be combined in the trustees, or split between the trustees and a bank or trust corporation. (No refs.) - *S. Glinsky.*

674 **BRAY, J. J.** The legal rights of the mentally retarded in relation to their civil liberties. *Australian Journal of Mental Retardation,* 1(5):133-140, 1971.

Although it is difficult to define a clear set of civil rights for the MR, the common law is more specific. Common law does not use the term

"mentally retarded;" there are only the sane and the insane. Institutionalization under the Mental Health Act automatically requires guardianship control and imposes definite limitations on the retarded; otherwise, individual statutes apply. A person who cannot understand the nature of a transaction cannot enter into a contract or dispose of his property, although ordinary contracts are binding on those of unsound mind if the other party was unaware of the facts. Marriage is void if either party is unable to understand the nature of the contract, and either spouse can sue for divorce if the other is mentally subnormal. In court action, insanity is no defense, unless the accused did not know that what he was doing was wrong. A person of unsound mind is not qualified to vote for Parliament or drive a car, and when institutionalized, he will be detained until officially discharged. (No refs.) - *B. Berman.*

Supreme Court of South Australia
Adelaide, South Australia, Australia, 5000

675 **ADAMS, MARGARET.** Community organization in the field of mental retardation. In: Adams, Margaret. *Mental Retardation and Its Social Dimensions.* New York New York, Columbia University, 1971, Chapter 10, p. 248-285.

Community organization refers to the type and range of activities directed primarily toward the development of services for the retarded. Objectives of the social worker are to ensure a wide array of services which a retarded person of any age and capacity might require to overcome his handicap; to mobilize and set up services addressed to the more general social problems and pressures which have been identified as potential causes of retarded development—namely, material poverty and its psychological by-products; and to help the normal community to an understanding of MR, its social etiology, and manifestations so that the community will develop an informal system of interaction with the retarded and their families that will break through their isolation and will strengthen their scope for normal involvement in the community. Development of services encompasses the areas of planning for new services, strengthening or seeding services in existing service agencies, and mobilizing concerned voluntary organizations, particularly parent groups, to participate in planning and implementation of services. The 2 major client populations, the more socially secure middle class group and those whose social maladjustment stems principally from serious material and cultural deprivation, determine how community organization methodology addresses itself to their several social problems and needs—specifically in the types and scope of services provided. Lower class communities are less likely to have informed parent groups or "good Samaritan" types of community organizations (such as JAYCEES, Rotarians, and church groups) whose aid can be enlisted. Here, one can more profitably turn to various government agencies for help in setting up and continuing the needed services. (24 refs.) - *J. C. Moody.*

676 **TEMBY, ETHEL.** Rights of the retarded. *Australian Children Limited,* 3(11):328-340, 1970.

The MR must have all the rights granted anyone else—unless they show themselves incapable of using them. The International League of Societies for the Mentally Handicapped—interpreting rights spelled out in the United Nations Declaration of Human Rights—has defined these rights. The retardate has a right to education under appropriate systems, by specially trained teachers, beginning as early as feasible and extending to the limits of his capacity. His needs, mostly simple, and his independence (including occupational) must be respected by the community, if he can satisfactorily live in one. If he needs to be institutionalized, then adequate funds and resources must provide suitable dwellings responsive to individual needs. The retarded have a right to be championed by and to have high expectations from those who can and wish to speak on their behalf. (No refs.) - *B. Berman.*

No address

677 **WOOLF, P. GRAHAME.** Subnormality services in Sweden. *Developmental Medicine and Child Neurology,* 12(4):525-530, 1970.

Unified and comprehensive services are provided to MRs in Sweden in hospitals, hostels, and homes. Only 18% is in the hospitals where the orientation is psychological, and staff pay and working conditions are adequate. Hostels emphasize mixed family-like groups and continue education and voca-

tional training through age 21. Approximately 80% of parents of MRs is active in the parent association and this organization helps maintain good public opinion toward MR. The entire Swedish system could well serve as a model for the much maligned American and English systems. (1 ref.) - *E. L. Rowan.*

Darenth Park
Dartford, Kent, England

678 Gold Award: Help for mentally handicapped children—Children's Psychiatric Research Institute, London, Ontario. *Hospital and Community Psychiatry*, 21(10):321-324, 1970.

The Children's Psychiatric Research Institute, the first mental health center in Canada to direct its services and research to the entire spectrum of mental handicaps in children and adolescents, provides free government-sponsored services for a population of 1,500,000. Crises intervention, inpatient, outpatient, and day patient care are offered through the pediatric, children, and adolescent divisions. After referral, each child receives a complete evaluation in the outpatient clinic by a team of professionals from the appropriate division to help parents plan a comprehensive program which may include remedial education, residential care, surgery, pharmacotherapy, and long-term guidance for both the child and the parents. Inpatients receive short-term treatment up to 3 months or long-term treatment up to 2 years. The staff-patient ratio on all divisions is 1:1. In addition to inpatients, 17 other children are day patients transported daily by local school systems. Day patients participate in the same educational, therapeutic, and activity programs as the residents. Staff specialists include special education teachers, pediatricians, speech therapists, occupational therapists, psychiatrists, social workers, physicians, nurses, residential counselors, and child-care workers. The underlying assumptions of all services are that physical, intellectual, and emotional development are inseparable and that each child must be understood within the framework of his particular family and community if he is to be habilitated. (1 ref.) - *C. L. Pranitch.*

679 **JONES, ROBERT E.** Old and new Philadelphia plans for mental health. *Hospital & Community Psychiatry*, 21(10):309-317, 1970.

Beginning with Pennsylvania Hospital, chartered in 1751, Philadelphia has always been in the vanguard of psychiatric practice and community support for mental health programs and facilities. In the field of mental retardation, Philadelphia has long been a leader. In 1896, the University of Pennsylvania established criteria for distinguishing childhood psychosis from MR, and the nation's first clinic for disturbed and MR children was organized. By 1924, an inpatient clinic for treatment of children with postencephalitic behavior disorders was opened at Pennsylvania Hospital. The Eastern Pennsylvania Psychiatric Center in Philadelphia has done pioneering work in nonverbal communication, family therapy, and childhood autism. The Philadelphia Association for Retarded Children developed the first Head Start program for MRs; the program was designed to correct physical handicaps and to prepare MRs for entry into public schools. Another Philadelphia first is the public school system's evening extension program offering 19 courses for 300 MR adults. In addition to having one of the best comprehensive vocational rehabilitation centers for adult MRs, Philadelphia will have the first such center in a community mental health center. (20 refs.) - *C. L. Pranitch.*

Institute of the Pennsylvania Hospital
Philadelphia, Pennsylvania 19107

680 **JORDAN, PATRICIA; & RALSTON, A. J.** Where shall they live? *Lancet*, 1(7652):896, 1970. (Letter)

Of 319 male residents on December 31, 1960, in a hospital for the MR, 187 (58.6%) were still there at the end of 1969. Since 1965, the discharge rate from such hospitals into the community has steadily declined. This suggests that highest priority should be attached to improving existing hospitals (which will have to provide residential care for disadvantaged persons for many years) before expanding community services. (4 refs.) - *B. Berman.*

Oulton Hall Hospital
Leeds, England

681 **SILVER, LARRY B.** Frequency of adoption in children with the neurological learning disability syndrome. *Journal of Learning Disabilities*, 3(6):306-310, 1970.

Interviews with parents of 80 children with the neurological learning-disability syndrome disclosed that 10 children were adopted—an incidence about 10 times that expected in a normal population. All the adoptive families were middle class; all the children had been adopted before age 3 months and from non-relatives, and all but one through private and state agencies. At the time of adoption, the parents were told the children were free of any handicaps. Unanswered questions remain on the possible effects of certain prenatal conditions on the child, the prenatal care received by mothers who place their children for adoption, and the academic status of the children's natural parents. (12 refs.) - *B. Berman.*

Rutgers University Medical School
New Brunswick, New Jersey 08903

682 New deal for the mentally handicapped. *Lancet*, 1(7644):457-458, 1970. (Editorial)

Beginning in 1971, there will be no difference in allocations for MR and mentally ill institutionalized patients in Great Britain. Although the long-term solution to the problems of MR lies in the expansion of community services, for the next 5 years regional boards should assure the adoption of standards regarding bed and day space and ward and hospital size. Small buildings, homes, houses in the community, hostel units, improved hospital conditions for cases requiring a long stay, special therapeutic services, and improved nurses' training are needed to provide better services for the MR. (No refs.) - *J. K. Wyatt.*

683 **ALLEN, RICHARD C.** Law and the mentally retarded. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 27, p. 585-611.

"Equal justice under law" (the rights afforded by law to all citizens) should apply to the MR, but everywhere the rights of the retardate are denied him. Everywhere, there is confusion and disagreement on what retardation means. Institutionalization procedures and the legal status and care of inmates cry out for reform. The retardate is denied dignity, the right to choose a place to live, to marry and have children, or to receive job training and guidance. He is forced into involuntary sterilization and is victimized by legalized guardianship and civil incompetency procedures. Society has made him an object of charity, not a citizen with inalienable rights. Being intellectually impaired, he has been automatically regarded as a potential delinquent and criminal offender, without any scientific evidence to support the contentions. Equal justice for the retarded demands all the legal rights he is capable of exercising (the right to protection, assistance, and humane treatment in suitable facilities) and due process of law in safeguarding those rights. (23 refs.) - *B. Berman.*

684 **EGUIA, JOSE I.** Los deficientes mentales y la eucaristia (The mentally retarded and the eucharist). Madrid, Spain, Euramerica, 1968, 204 p. (Price unknown)

This book describes how the MR can be taught, educated, trained for jobs, and incorporated into society. Methods by which the MR can be saved and the role the church plays in their salvation through the sacraments, especially the eucharist, are explained. (571-item bibliog.) - *R. N. Apold.*

685 **AZUA, PAULINO.** El problema de la edad adulta (The problem of the adult age). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, Chapter 12, p. 293-316.

The type of tutelage suitable for MRs is discussed. The legal aspects of this tutelage should guarantee protection which is socially effective. The international doctrine emerging for regulating tutelage of the MR is discussed, along with considerations regarding the need for such tutelage in individual cases. The tutelage situation in the Spanish legal system is insufficient with regard to the MR and the revision of the legal system, especially with respect to tutelage, is urgently needed. The creation of homes for the MR where they can live in small groups as normally as possible is an important step. In these homes, the MR can participate

in general activities and do some work. These homes may also contain both sexes. Suggestions are given for particular homes, such as those that would house SMRs or retarded patients with physical disabilities. (4-item bibliog.) - *R. N. Apold.*

686 **RIOS, JOSE ANTONIO.** El problema pastoral (The pastoral problem). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, Chapter 10, p. 243-268.

Methodological principles for the religious education of the MR are outlined, and Christian solutions to the difficult task of their moral education, practical aspects of their ecclesiastical integration, and their introduction to the catechism and sacraments are discussed. Criteria which should be used in guiding the pastoral and formative actions of the MR are examined. Religious vocation is not recommended for the MR due to the many exigencies of such a career. However, each case should be examined individually. (14 refs.) - *R. N. Apold.*

687 **RUBIO-NOMBELA, GREGORIO.** El problema asistencial y administrativo (The assistance and administrative problem). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, Chapter 8, p.185-218.

The basic objectives for the adequate attention to MR are discussed. Terminology and typology are examined as well as the number of people affected. There are many laws dealing with the MR, but due to personal and financial obstacles, they have only limited effect. In general, there are no legal statutes regulating many aspects which concern the MR—special education centers, personnel, etc. There is a lack of system and organization with respect to public and private centers for the MR and the creation of a central agency which would have complete control of these centers is suggested. Other aspects in the care of MR are equal opportunities, provision of regional services, family, protective associations, specialized personnel, and research. Communication, coordination, cooperation, ordination, organization, financing, control, information, subsidizing, supplementation, socialization, and promotion are necessary to ensure adequate services for the MR. (6 refs.) - *R. N. Apold.*

688 **SAINZ DE ROBLES, FEDERICO.** El problema politico y legal (The political and legal problem). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent Question).* Madrid, Spain, Euramerica, 1970, Chapter 7, p. 161-183.

The legal status of MRs in Spain is reported. There is a lack of legal help in solving problems related to the tutor or representatives of the MR. Legal problems related to the internment of the MR are discussed along with the creation of a census to list retarded people. Laws dealing with special tax deductions for families with an MR member and with special social security benefits for the MR are reviewed. (11 refs.) - *R. N. Apold.*

689 **HANSON, ROBERT M.; BURGER, HARRIET C.; & PHILLIPS, ROBERT.** Child care: One of the many occupational programs for adolescent handicapped children. *Journal of School Health,* 40(7):370-372, 1970.

A special child care program developed for handicapped adolescents in Westchester County, New York, has proved mutually beneficial to students and babies. Designed to provide new direction and greater emphasis on occupational orientation for the adolescents in special secondary classes because of physical, mental, or emotional handicaps, the program stimulates acquisition of skills and concepts necessary for proper care of infants in a family setting. The child care program offers total care to 3 babies drawn each year from the community. The course is 6 weeks long, but the same 3 babies are kept for an entire year with succeeding groups of students. The curriculum, evolved from stated goals and interests of students, has grown until it encompasses total child care. The handicapped students have gained practical skills, shown uninhibited expressions of affection (not displayed before), and developed positive, enriched attitudes towards infants that have

carried over to lessened hostility to authority and greater receptivity to learning. Many students, as a result of these experiences, have entered careers as aides, working with young children. (No refs.) - *B. Berman.*

690 **MITCHELL, ROSS G.** Better adoption practice. *Developmental Medicine and Child Neurology*, 12(4):520-521, 1970.

Adoption practice today is child-centered: the first consideration is to provide a child with loving parents and a secure home. Agencies use experienced social workers to examine all aspects of prospective parents' suitability. The latter, too, are protected: ideally, every infant is examined by a pediatrician, and all information is gathered about the infant's heredity, his natural parents, and possible abnormalities. The pediatrician does not pronounce on suitability for adoption—the agency does that. The prospective parents are advised, however, of the limitations of medical examination—no guarantee can be given about an infant's future development. Many ill-advised adoptions result from inadequate preparatory casework; to improve adoption practices in Britain, a joint committee was set up in 1967 by the Advisory Councils on Child Care for England and Wales to consider and report on present practice and the need for legal changes. (1 ref.) - *B. Berman.*

No address

PROGRAMMATIC ASPECTS – Residential

691 **SCHEER, RALPH M.** Retardates maintain a park. *Rehabilitation Record*, 11(1):4-5, 1970.

A park maintenance program motivated MRs with a job failure record to live and work independently. The Ss were 25 youth and adult MRs, who together with 2 institution staff members and 5 college seniors were divided into groups of 4 or 5 and worked a 32-hour week for a summer in a state park. The prime emphasis was on the social-emotional problems of the trainees, with work-skill development being secondary. Under the guidance of a counselor, each group conducted a daily evaluation of each member's vocational and social contribution. All trainees were treated as regular workers, were paid, and participated in planned weekend activities, often in a neighboring town. When the program was completed, a survey of the participants revealed that 23 preferred the camping experience over institutional life, 21 preferred being treated as men rather than institutional retardates, and 23 evaluated their community contacts as being friendlier than expected. After 9 months, 13 are independently gainfully employed, and employment prospects for the others appear quite promising. (No refs.) - *S. Glinsky.*

Austin State School
Austin, Texas

692 **KROLL, ROBERT; & SHEILA, M.** Should my child be in an institution? *Parent-Educator*, 3(6):1A-5A, 1970.

The decision on whether to institutionalize an MR child is solely the right of the parents and involves due consideration of the types of institutions available, family and community attitudes, and the best interests of the child. Institutions, both public and private, should be investigated regarding the education program, recreation, food service, residential care, religious programs, and vocational rehabilitation training. Parents must be clear about their own feelings regarding institutionalization, be able to justify it in their community, and must properly prepare the child. The ultimate answer depends on where the needs of the child are best served. (No refs.) - *S. Glinsky.*

Christ the King Seminary
West Chicago, Illinois

693 **STEVENSON, F. H.** Food for the mentally subnormal. *British Medical Journal*, 1(5696):627, 1970. (Letter)

Although environmental and educational conditions in MR hospitals have definitely improved, diet is still a matter of concern since food expenditures are far less in these institutions than they are in other hospitals. Despite arguments that food is adequate and that patients don't appreciate variety, there is a suspicion that diet is inadequate and should be investigated by an expert commission. (No refs.) - *B. Berman.*

Royal National Orthopaedic Hospital
London, W.1, England

694 **NEWCOMBE, J.** Care of the mentally subnormal. *Lancet*, 1(7643):414-415, 1970. (Letter)

Extra wards in existing hospitals for the MR and new small hostels should be built to alleviate the present crowded conditions in MR hospitals. For the present, only the SMR should be admitted to a hospital. Local health authorities must spark the drive for hostel accomodations and provide the site, money, community support, and staff. (1 ref.) - *E. L. Rowan.*

Whixley Hospital
York, England

695 **SPENCER, D. A.** Education of mentally subnormal children. *British Medical Journal*, 1(5699):822, 1970. (Letter)

Certain MR children, rejected as too "difficult" and relegated to hospital wards, will deteriorate rapidly unless the progressive hospital organizes play groups and other activities for them. Abandoned as beyond the reach of existing training methods, this group needs specialized teachers, educators, psychologists, and training techniques, as well as special perseverance and intelligence in handling. (1 ref.) - *B. Berman.*

Stansfield View Hospital
Todmorden, England

696 **ABRAMS, ARNOLD L.** Prisoner-volunteers work with profoundly retarded men. *Hospital & Community Psychiatry*, 21(10):336-338, 1970.

The Concord Achievement Rehabilitation Volunteer Experiment (CARVE) has successfully demonstrated that prisoner-volunteers can work with institutionalized PMR males. Since prison inmates had difficulty in finding meaningful activities and the PMRs suffered from lack of personnel to assist them with self-care and recreation, the experiment was developed to meet the needs of both groups. Since 1968, an average of 16 CARVE volunteers have worked daily as patient aides. Prisoners recommended for the program are considered minimum security risks, have no history of sexual crimes or drug addiction, and are screened by a committee of prison staff members and the assistant director of nursing from the institution. All CARVE workers receive instruction in patient care and hospital procedures. Although the program inevitably encounters problems which are basic to prison inmates, such incidents are the exception. Staffs of both institutions, parents of patients, and visitors have been impressed by the CARVE experiment. A more extensive program providing CARVE workers with a 16-week training program leading to a certificate in ward work and patient care has recently been funded by the Office of Education. CARVE workers are often employed by the hospital after parole. (No refs.) - *C. L. Pranitch.*

State Department of Mental Health
Lexington, Massachusetts

697 **SUTHERLAND, A. H.** Clothes for the mentally handicapped. *Nursing Mirror*, 130(24):23, 1970.

Institutionalized MRs and mentally ill patients should be provided with individual clothing. Volunteer workers could assist in sewing on name tags, and individual lockers may provide an answer to the storage problem. (No refs.) - *C. L. Pranitch.*

No address

698 **PARRY, WILFRED H.** Oh, for more like this. *Nursing Mirror*, 130(24):29-31, 1970.

The Junior Training Center in Nottingham (England) has a full range of facilities for the care and

training of TMRs (CA 3 to 16 yrs) including a dining area, fully equipped gymnasium, and housecraft and handicraft rooms. A special care unit for severely handicapped TMRs is provided with a bathroom, laundry unit, and water play area. The center accommodates a minimum of 192 children and has 16 classrooms including a nursery and infant department. (No refs.) - *C. L. Pranitch.*

Junior Training Center
Nottingham, England

699 **KITCHIN, C. HARCOURT.** Who cares...? *Nursing Mirror*, 130(5):10-12, 1970.

A conference on future patterns of care for the MR emphasized a need for greater educational opportunities for the institutionalized patient. Recent surveys estimate that 10-25% of institutionalized MR children had IQs over 55 and 60% of the MR adults was moderately retarded, yet 50% of these spent each day in the wards doing nothing. A hospital environment was considered inappropriate for about 50% of the MR adults because these patients did not need nursing, and institutionalization was denying them occupational and educational opportunities. Until locally based smaller units can be implemented, present residential care can be improved by stressing teaching aspects of the nurse's job and making greater efforts to reduce patient depersonalization and regimentation. (No refs.) - *C. L. Pranitch.*

King's Fund Hospital Center
London, England

700 **POTTER, HOWARD W.** Human values as guides to the administration of residential facilities for the mentally retarded. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 26, p. 575-584.

MRs are human and need the same recognition, warmth, and sophisticated and professional care that all disabled individuals require. Administrators must structure the residential environment to provide basic care for the retarded (shelter, nutritious food, professional health services, and adequate clothing) determined not by scheduled money allotments, but by genuine need. Resources and facilities of existing "all-purpose" institutions have been strained in recent decades by increased demands for admission. Administrators must carefully appraise these facilities and determine whether they can handle the multivaried needs of the severely disabled on the one hand and, on the other, the emotionally and socially disturbed with only mild intellectual disability. Psychodynamics must be applied to the whole range of retardate problems. (No refs.) - *B. Berman.*

701 **DYBWAD, GUNNAR.** Roadblocks to renewal care. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 25, p. 552-574.

Roadblocks to enlightened residential care for the retarded are rooted in mass cultural attitudes reflected in traditional institutional regimes. A major roadblock is the medical model—institutions for the retarded are fashioned on the traditional pattern of psychiatrist direction, with a focus on pathology in diagnosis and consequent inattention to educational programing. Add to this the prejudiced attitude toward MR of the professional community, the inadequate management and rigid administrative structure of institutions, the primitive legal status of the retarded which is equivalent to social abandonment, and the picture is indeed dismal. Of foremost importance is the improvement of the archaic architectural and programmatic conditions in MR institutions—provision of such elementary items as proper space for active programs, sufficient bedrooms and bathrooms, and an environment which will stimulate and nourish. (26 refs.) - *B. Berman.*

702 **BEITENMAN, EDWARD T.** The psychiatric consultant in a residential facility for the mentally retarded. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 23, p. 527-542.

Psychiatric consultation is a necessity for institutionalized retardates, who inevitably have associated emotional and behavioral problems. The psychiatrist and residential staff initially find themselves at odds until they have learned to understand their respective roles. The psychiatrist

must understand the hierarchy and enlist the aid of child-care workers (who have the closest daily contacts with the children), nurses, educational therapists, psychologists, social workers, vocational rehabilitation experts, and those who provide generic services (chaplain, dentist, physical therapist, and speech therapist). Case seminars are effective in providing the staff with an understanding of psychiatric services, although attendance in an understaffed institution presents problems. A number of illustrative case histories (cultural-familial, child from a closely knit family, psychiatric behavioral disturbance, and idiopathic retardation) are cited as suggestive vehicles for team discussion of familial and personal dynamics. (7 refs.) - *B. Berman.*

PROGRAMMATIC ASPECTS – Recreational

703 Selected bibliography on recreation for the mentally retarded. *Therapeutic Recreation Journal,* 3(4):41-42,14, 1969.

A bibliography of 34 selected items reflects current thinking on recreation and rehabilitation for MRs. Specific recreational activities investigated with respect to MRs include crafts, games, dance, scouting, and camping. Other areas of concern are motor function improvement, social education, cultural deprivation, model cities, adolescent attitudes, home influences, activities programing, and physical education. The selection covers materials published between April, 1964 and July, 1969. (34 refs.) - *S. Glinsky.*

704 **MITCHELL, HELEN JO; & HILLMAN, WILLIAM A., JR.** The municipal recreation department and recreation services for the mentally retarded. *Therapeutic Recreation Journal,* 3(4):32-40, 1969.

The present condition of recreation services for MRs reveals a great discrepancy between services provided and services required. Various studies indicate that a disproportionately high number of recreation departments does not fulfill its responsibilities in providing MR programs, due largely to professional inadequacy and negative attitudes. The assumption of this function by private agencies must be re-evaluated. Although MR recreation program development requires new guidelines, many of the existing guidelines for normals are valid for MRs. State and federal aid is needed to overcome the inadequacies of present programs. Institutions of higher learning have the responsibility of developing education programs and preparing personnel for this field. Public recreation agencies must not limit themselves to token efforts, but must develop adequate and effective programs, as a small number of public recreation departments have already done. Community teamwork is absolutely necessary if recreation departments are to meet the needs of the retarded. (20 refs.) - *S. Glinsky.*

D.C. Department of Recreation
Washington, D.C.

705 **NEWMAN, JUDY.** What a difference a year makes. *Outlook,* 1(4):1,4, 1970.

An experimental, 1-year swim-patterning program has enabled physically handicapped and brain-damaged children to achieve varying levels of aquatic skills. Each child was evaluated according to individual needs, given an individual program, and re-evaluated regularly. Most children developed some range of motion in just a few months, and many progressed to independent swimming. Benefits of the swim therapy included increased muscular control and strength, use of arms and legs alternately in rhythmic movements, rhythmic breathing, and breath control. Mastery of specific skills has led to improved initiative and attention spans, transfer of motivation to other activities involving the use of hands and legs, personal discipline, better self-concepts, and more positive attitudes toward life. (No refs.) - *S. Glinsky.*

Angel View Crippled Children's Foundation
Desert Hot Springs, California 92240

706 **PETERS, ROBERT.** Bullseye! *Outlook*, 1(4):3, 1970.

Archery instruction has been adapted for MRs both with and without handicaps, even for those who must stand on their knees or who are restricted to wheelchairs. The Ss, whose mean age was 21, met weekly in 6 classes of 7 persons each. Early problems which were overcome included nocking an arrow, correct drawing of the bowstring, and forward creeping of the hand before arrow release. Those in wheelchairs adapted by leaning to the side of the wheelchair to shoot or by holding the bow horizontally. Those with hand and finger control difficulties supported their drawing hand upon their leg. The MRs' success in learning archery skills resulted in both enjoyment and a sense of achievement. (No refs.) - *S. Glinsky.*

Fort Custer State Home
Augusta, Michigan 49012

707 **HEATHER, DAVID.** Garden design—Without hazards! *Parents Voice*, 20(2):22-23, 1970.

A properly designed garden with play area and equipment can serve both the family and the special needs of the MR child. The garden features must take into account the MR's inability to guard against dangers as well as family preferences. Basic necessities include: completely enclosed fencing with a back entrance and side gate; a hard surface area for continuous cycling; placement of all large features to permit constant observation of the child from the house; and the arrangement of flower beds, shrubs, and grass areas for easy maintenance. The play area requirements are sand, imaginative play equipment, climbing equipment, and things to ride. Larger, expensive items, such as swings and slides, are optional but not necessary, if the cost of an average 80 feet X 40 feet garden is not to exceed 150 pounds. (No refs.) - *S. Glinsky.*

Essex University
Essex, England

708 Teaching a mongol child to swim. In: Focus, the newsletter of the Sale and Altrincham Society. *Parents Voice*, 20(2):11, 1970.

A child with Down's syndrome learned to swim through regular weekly practice with her parents over a period of 2½ years. The child was slowly accustomed to the water and made to feel at home in it. With the aid of water wings, which can be gradually deflated as the swimming skills improve, the proper arm movements were mastered. Regular reinforcement practice took place at home on a bed. Work on leg movements began after 2 years, and in the final stage, arm and leg movements were synchronized. Although progress was slow, the child can now swim independently. (No refs.) - *S. Glinsky.*

709 **POMEROY, MORRIS (MRS.).** The San Francisco Recreation Center for the Handicapped: A brief description. *Therapeutic Recreation Journal*, 3(4):15-19, 1969.

The Recreation Center for the Handicapped, a non-profit center and the only one of its kind in the nation, has been in existence for 17 years and serves over 525 persons with all types of handicaps from 14 months to 80 years of age. The Center provides a comprehensive, year-round program of varied educational and recreational activities. Transportation is provided by 9 buses equipped with straps and harnesses, and operating 6 days a week. The organization is governed by a board comprised of broadly representative lay and professional persons and is financed by private and public funds. Parents pay membership and activity fees if able and participate in fund-raising. A large, professional, paid staff is assisted by approximately 225 volunteers. The Center relates to other agencies in terms of: direct services; education; consultation; coordination, planning, and referrals of community services; professional associations; and as recipients of services from community agencies. The sheer variety of programs offered provides innumerable benefits for the MRs and other participants. (No refs.) - *S. Glinsky.*

Fleishhacker Pool Building,
Great Highway near Sloat Boulevard
San Francisco, California 94132

460-551 O - 72 - 14

710 **SCHWARTZ, ARTHUR L.; & RAMSEUR, JAMES.** A guide to organizing leisure time services for the mentally retarded. *Therapeutic Recreation Journal*, 3(4):25-31, 1969.

Group work and recreation service must not only provide fun and body-building exercise but must enhance and modify social behavior and attain other goals related to social living. These services should ideally be rendered by existing public and private community centers, contribute to the well-being of the participant and his family, and be initiated as early as possible in the life of the individual for maximum benefits to him. General considerations regarding program structure include a one-to-one relationship to the size of the community, size and age of the MR population, available resources, depth of program, and aims. Other requirements are the establishment of a supervisory program committee, active recruiting of participants, and a professionally qualified staff. Program goals include providing opportunities for socializing with peers, decreasing dependency, enhancing social functioning, developing feelings of self-esteem and usefulness, modifying behavior patterns, learning basic social skills, and keeping the MR in the community. Special program features include trips, bowling, a "Diners Club" to develop social skills, and winter and day camps. Individualization is of key importance and involves personal assistance to the MRs as well as outside counseling for the MR and his family. (No refs.) - *S. Glinsky.*

No address

711 Therapeutic playground. *Nursing Mirror*, 130(5):19, 1970.

Playground equipment has been designed to help teach directional, body image and spatial concepts to physically handicapped and MR children. The equipment, made from aluminum sheet and tube, uses arabic numerals for shapes and is lightweight, weather resistant and suitable for indoor or outdoor use. (No refs.) - *C. L. Pranitch.*

712 **PARK, DAVID C.** Therapeutic program: A community responsibility. *Parks & Recreation*, 5(7):25-26, 66, 1970.

If the goal of the public recreation program is to provide recreation programs for the total population, the community must accept responsibility for providing special programs for handicapped persons. The communication gap between the therapeutic recreation specialist and the community recreation administrator must be closed. Institutional emphasis is no longer on custodial care for the MR but on their rehabilitation and preparation to return them to the community. This conceptual change demands greater coordination between hospitals and community recreation staffs. (7 refs.) - *C. L. Pranitch.*

No address

FAMILY

713 Talking to parents. *Parents Voice*, 21(1):14, 1971.

Practical information is given on persuading the infant MR. Weaning the MR infant and persuading him to accept food from a spoon are basically the same as for a normal child and can start as early as 6 weeks of age. Occasional spoons of warm, sweet liquids are gradually followed by larger amounts of cereal food in a cup or spoon to accustom the child to the feel of hard objects and facilitate lip and chewing movements. By 1 year of age, complete feeding by spoon or cup should be achieved. Patience and pleasurable experiences at eating time are the key factors in weaning. (No refs.) - *S. Glinsky.*

714 **WEINBERG, MARTIN.** Preparing for the future. *Parents Voice*, 21(1):10-11, 1971.

Parental protectiveness regarding their MR child must be progressively relaxed if the child is to

advance toward a degree of independence. Four years' experience with thousands of boys and girls at a special school has demonstrated that temporary separation of the MR from the family leads to definite progress in self-confidence and preparation for the future. A realistic attitude must be adopted by parents regarding their own and their child's feelings at separation. Pengwern Hall recognizes this crucial factor and makes every effort to help the MR child and his parents make the transition from a fully-protected family situation to eventual independence and self-sufficiency for the MR. (No. refs.) - *S. Glinsky.*

Rhuddlan Near Rhyl
North Wales, England

715 **BAUMANIS, DEBORA.** Both sides of the coin: The retarded child and his family. *Canada's Mental Health*, 18(3 and 4):23-28, 1970.

Placing a retarded child away from home is not an abandonment of parental responsibility; in many instances, it enhances the child's welfare and the family's well-being. In a case of a boy with Down's syndrome (youngest of 3), although lovable and affectionate, his extreme hyperactivity and volatility and demands on the family (plus his own growing frustration) made placement imperative. Parental readiness in placing a retarded child is crucial—the counselor must help, but not urge. The many varieties of MR make alternative forms of care necessary. Companionship, regular home visits, rehabilitation potential (all necessary ingredients) are now available in the community residence, although some retardates are best handled in the large institution. Parents must guard against guilt and anxiety, but must maintain a close relationship with the child for the sake of his mental health (No refs.) - *B. Berman.*

Children's Hospital
Buffalo, New York

716 **PRABHU, G. G.** Personality characteristics of parents who overestimate the potentialities of their retarded child. *Indian Journal of Mental Retardation*, 3(2):55-61, 1970.

Parents who overestimated the potentialities of their MR child were more extroverted (.02 level) and emotionally unstable (.01 level) and had a poorer self concept (.05 level) than parents who were able to evaluate their MR child in a realistic manner. Family background factors did not differentiate between 50 cases in which parents had overestimated a child's potential and 50 cases in which parents' estimation of potential was correct. In an investigation of subjective personality factors, Eysenck's Personality Inventory, a hostility and aggression questionnaire, a test for liability for depression and Sack's Sentence Completion Test were administered to 40 parents in each group. Personality aspects of parents may be important factors that account for variation in their evaluation of the assets and liabilities of an MR child. (7 refs.) - *J. K. Wyatt.*

All India Institute of Medical Sciences
New Delhi-16, India

717 **RICCI, CAROL STANISLAWASKI.** Analysis of child-rearing attitudes of mothers of retarded, emotionally disturbed, and normal children. *American Journal of Mental Deficiency*, 74(6):756-761, 1970.

The Parent Attitude Research Instrument (PARI), administered to 60 mothers of retarded, emotionally disturbed, and normal children (20 for each group), showed that mothers of retardates had the most rejecting attitudes, and mothers of normals were the most authoritarian. Administered individually on 3 separate occasions at 1-week intervals, the test characterized attitudes on 2 orthogonal attitudinal dimensions: Authoritarian-Control and Warmth (Acceptance-Rejection). Mothers of the emotionally disturbed were the least authoritarian but were overindulgent; mothers of retardates not only rejected but were punitive as well; mothers of normals coupled their authoritarianism with overprotection. (21 refs.) - *B. Berman.*

University of California at Los Angeles
Los Angeles, California 90024

718 **GAYARRE DE GIL, CARMEN; & AZUA, LUIS DE.** El problema familiar (The family problem). In: *Deficiencia Mental, Cuestion Urgente (Mental Retardation, Urgent*

Question). Madrid, Spain, Euramerica, 1970, Chapter 4, p. 89-112.

The problems encountered by the parents of MR children and various ways to help them are discussed. The availability of information concerning centers of special education is stressed. The cooperation of parents in special schools for the MR is considered essential. They in turn can help teachers in the performance of their duties. A section by the president of the Spanish Federation to Protect Subnormals describes historically the formation of such societies in Spain and the problems these societies have and will face. (14 refs.) - *R. N. Apold.*

719 **WOLFENSBERGER, WOLF; & MENOLASCINO, FRANK J.** A theoretical framework for the management of parents of the mentally retarded. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation*. New York, New York, Basic Books, 1970, Chapter 20, p. 475-493.

A framework for managing parents of retardates that will handle varied situations and consider parental needs as deriving from novelty shock (expectancies being suddenly shattered) and reality stress (caused by demands of caring for a retarded child) is proposed. Within this framework, family managers, working in 3 stages, should explore and meet family needs in a rank order of immediacy, minimize all irrelevant issues, and deal with management options so as to extract the greatest effectiveness. In the final stage, "primary psychopathology" is defined, presenting the personal-adjustment problems and separating out those not connected with the retarded child's presence in the family. Periodic assessments, deemphasis of predictions, and judiciousness in referrals to agencies are part of the management cycle. This approach benefits the retardate, his family and society. (44 refs.) - *B. Berman.*

720 **SOLOMONS, GERALD.** Counseling parents of the retarded: The interpretation interview. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation*. New York, New York, Basic Books, 1970, Chapter 19, p. 455-475.

Since 75% of retardates present no physical cause, parents are generally confused, guilt-ridden, hostile, and without understanding of their child's condition. The family physician, to whom parents first turn, is not happy about treating the retardate, frequently resents educational and school psychologist's recommendations, and is unaware of the criteria for special educational placement. The school, where the retardate's problem generally first becomes known, treats him as a problem on the assumption he is causing trouble in the classroom and refers him to the child-development clinic as a referee between school and parents. Frequently disturbed, the parents approach the counselor, whose primary duty is to listen and find out why the parent is seeking help. The counselor should review the patient's history, perform necessary testing, and interpret the findings before a diagnosis is made. Explanations to the parents and use of specialized terminology must be keyed to parental intelligence; the proper diagnostic label will contribute to a parent's peace of mind. Decisions on treatment, institutionalization, and prognosis must be a consensus, with all relevant data assessed. (17 refs.) - *B. Berman.*

721 **TURNER, EDWARD T.** Attitudes of parents of deficient children toward their child's sexual behavior. *Journal of School Health*, 40(10):548-550, 1970.

Questionnaires returned by parents of handicapped children (slow learners, brain-damaged, mongoloids, emotionally disturbed, EMRs, and TMRs—IQ range 0 to 139) disclosed that most of these parents felt their children had no problems in dealing with sex. One-third of the parents had discussed sex with the child but only in regard to birth. Twenty percent of parents saw sex difficulties in their children; these were the emotionally disturbed and the brain-damaged, and the difficulty noted was chiefly "excessive masturbation." Ninety-two percent felt their child was progressing toward a "normal" life; only parents of the brain-damaged felt otherwise. Only 7% of the children had received any kind of sex education in the schools. Larger samplings and comparable studies with parents of "normals" would provide necessary confirmations. (9 refs.) - *B. Berman.*

Appalachian State University
Boone, North Carolina

PERSONNEL

722 **STUBBLEFIELD, HAROLD W.** On being a pastor to the mentally retarded. *Journal of Pastoral Care*, 24(2):98-108, 1970.

Ministering to institutionalized MRs requires that the pastor understand the MR's world as well as his own feelings toward MRs and that he be flexible and creative in his approach. Factors affecting pastoral care of MRs are the non-homogeneity of the group, situational and social class variables, and the variety of religious ministries in which MRs can participate. Although the world of the retarded is limited and leads to dependency and occasional behavioral over-responses, the MRs reach out in many ways for contact. Factors affecting one's own feelings about MRs include the lack of stimulating relationships, loss of belief in human progress and one's ability to remedy a situation, the arousal of feelings of pity and repulsion, demands by the MRs, and the difficulty of non-verbal communication. A meaningful pastoral relationship seeks to help MRs: cope with life; deal with experiences of loss, grief, and failure; and form a valid faith. Pastoral care is rendered in unstructured and structured relations with specific goals. (1 ref.) - *S. Glinsky.*

Clover Bottom Hospital and School
Nashville, Tennessee 37214

723 **REILAND, ROBERT F.** Administrative plan at Live Oaks School, Calpella. *Journal for Special Educators of the Mentally Retarded*, 6(3):156-157, 1970.

An articulation program at the Live Oaks School, Calpella, California, sought to develop staff understanding of inter-class integration, overall curriculum, and teacher responsibility. The school, which serves 36 TMRs, has a staff of 3 full-time teachers, a part-time principal, and 3 teacher aides; the services of outside consultants, therapists, and other assistants are also available. In order to understand better the school's rationale and objectives and to achieve a greater degree of articulation, each teacher taught another level class for a week and the principal taught each class once. Subsequent discussion revealed that the experience was helpful and productive in that it provided the teachers with a greater understanding of the total educational program and of the other children, gave them a change of pace from the routine, and stimulated a fruitful exchange of ideas. (No refs.) - *S. Glinsky.*

Live Oaks School,
Calpella, California 95418

724 **LITTLE, HARRY A.; & ANDERSON, ROBERT M.** A cooperative venture in program development for the trainable mentally retarded. *Journal for Special Educators of the Mentally Retarded*, 6(3):181-184, 1970.

A university teacher education program for TMRs has been developed at Illinois State University in cooperation with the Illinois State Departments of Mental Health and Public Instruction. The initial project recognized the problem of lack of TMR teachers as opposed to EMR teachers and sought to stimulate interest and attract a greater number of students to TMR teaching careers. Two essential steps in the project were to develop and give visibility to a university TMR teacher's curriculum and to initiate a practicum approach. The objectives of a 5-day pilot practicum undertaken at a nearby state school with 7 university students were to familiarize the students with institutional programs and functions and the use of ancillary services, to make classroom experience and academic course work more meaningful, and to accelerate the adjustment of program graduates to their eventual teaching position. An evaluation of the practicum experiences showed meaningful gains toward all objectives except the last one. As a result of this and 2 other pilot practicums, a new course has been created for the practicum experience, which is held between junior participation and student teaching. Over 50 students are now enrolled in the TMR program, as opposed to an original number of 12 at the time of the pilot project. (3 refs.) - *S. Glinsky.*

No address

725 **KRAMER, MILTON; & YOUNG, CALVIN.** Ohio's professional workers receive training in community mental health. *Hospital & Community Psychiatry*, 21(5):153-155, 1970.

Since 1967, the Division of Mental Hygiene of the Ohio Department of Mental Hygiene and Correction and the Department of Psychiatry of the College of Medicine of the University of Cincinnati have operated the Program in Continuing Education in Community Mental Health. Approximately 260 professionals in psychiatry, psychiatric social work, education, and administration have attended the courses offering community oriented approaches to the treatment and prevention of mental illness. Each class of 20 professionals engages in traditional educational methods, site visits, workshops and seminars. Among areas explored are community, state, and federal mental health services; mental illness prevention; current and future treatment programs; mental retardation; and evaluation projects in current treatment programs. Each participant is asked to express his goals for the mental health program in his community. The goals, a bridge between concepts and actual professional activities, provide a focal point for discussion when the program director makes a follow-up visit to the participant's community setting. Alumni have initiated such activities as home visit programs, emergency services, day care centers, satellite clinics, and lectures on drugs for high school students. (No refs.) - *C. L. Pranitch.*

University of Cincinnati
Cincinnati, Ohio 45219

726 Handling of mental patients. *Lancet*, 1(7647):611, 1970.

Charges of unnecessary physical violence against patients by nurses at a hospital for the MR resulted in circulation of a petition among all nurses in such hospitals asking the Secretary of State for Social Services to define how nurses must handle such patients. Nurses claimed that physical restraints were required for violent patients but were uncertain as to the proper limits of such restraints. (No refs.) - *B. Berman.*

727 **BARKSDALE, MILDRED W.** Student evaluation of films used in a teacher-education program. *Exceptional Children*, 37(1):39-40, 1970.

Ratings of films (to be used in a course, Teaching the MR) by 1,115 students gave excellent ratings to 4 films (Operation: Behavior Modification, Silent World, Children of the Silent Night, and Functional Teaching of Numbers) as especially suitable for teaching the deaf and the MR. Qualities rated included value of subject matter, timeliness, treatment, length, and appropriateness. Other films were given ratings of above average, average, or poor. Six were considered average or poor. (No refs.) - *B. Berman.*

Georgia State University
Atlanta, Georgia 30303

728 **PRABHU, G. G.** A study of parents' needs for institutional facilities for the retarded. *Indian Journal of Mental Retardation*, 3(1):21-24, 1970.

A comparison of 40 retarded children whose parents wished to institutionalize them with 80 children whose parents preferred special schools revealed severe MR and behavior problems as the reasons for institutional preference. The child's sex and physical handicaps and parental social status played no part in the decision. The results indicate a need to reorient community emphasis towards providing facilities for the severely retarded and disturbed. (2 refs.) - *B. Berman.*

All India Institute of Medical Sciences
New Delhi-16, India

729 **CYTRYN, LEON.** The training of pediatricians and psychiatrists in mental retardation. In: Menolascino, Frank J., ed. *Psychiatric Approaches to Mental Retardation.* New York, New York, Basic Books, 1970, Chapter 30, p. 651-660.

The medical profession's increasing involvement in MR requires necessary training for pediatricians and psychiatrists. Essential steps include broad training in relevant disciplines (sociology, psychology, and education) for the medical student and educating the future pediatrician to awareness of a child's emotional and educational needs, and the

family's need for understanding. With psychiatric thinking now embracing the interactions of biology, psychology, and culture in psychodynamics, the psychiatric resident is crucial in the training program. In addition, a resident's skill and interest in MR will be increased by a prolonged rotation in a suitable residential center. Success in training programs will depend on availability of specialists and of university, hospital, and institutional facilities. Of utmost importance are the services of a coordination team that will orient the trainee in the interdisciplinary needs of MR. (7 refs.) - *B. Berman.*

730 **HAVERKAMP, LEONA J.** Brain-injured children and the school nurse. *Journal of School Health*, 40(5):228-235, 1970.

The school nurse who has some knowledge of brain-injured children can be especially helpful in administering medications and facilitating parental cooperation, both of which are vital to the child. The nurse can help in identifying the brain-injured child, who may reveal such signs as hyperactivity, distractibility, impulsiveness, emotional instability, perseveration, speech problems, overaggression, and immaturity. Education of the child is exceedingly complicated, requiring the assistance of several specialists (doctor, psychologist, social worker, and nurse in addition to the teacher). An empirical approach is best in applying any of the numerous available pharmacological therapeutic agents: major tranquilizers, anticonvulsants, central-nervous-system stimulants (such as amphetamine, dextroamphetamine, and methylphenidate). The nurse can fill a crucial role at school and in the home by supervising the doctor's instructions for medication. The nurse's home visits and counseling are important for parental peace of mind. (17 refs.) - *B. Berman.*

Cedar Rapids Community Schools
Cedar Rapids, Iowa

AUTHOR INDEX

The author index has been compiled on the basis of abstract numbers rather than pagination.